

TANDY LAPTOP COMPUTING

MAY 1991 -VOL. 8, NO. 3

TERRY KEPNER'S

portable 100

A MONTHLY PUBLICATION (EXCEPT COMBINED JULY/AUGUST ISSUE)

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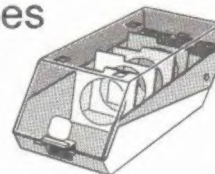
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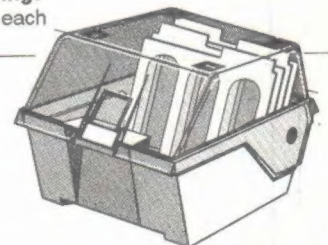
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WP2DOS

Turn your WP2 into a PC-partner. The only "file transfer" and "file conversion" software available or WP2 to DOS computer owners. Online utilities convert WP2 .DO files to popular DOS word processing file formats ... maintains file formatting codes. Super easy and fast. (Computer<=>Link Cable required)

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Turn your Model 100/102 into a Mac-partner. Connect your laptop computer or Tandy Portable Disk Drive directly to Macintosh computer for file transfers at 19200 baud. Fast! Easy to use. Single or batch file transfers at the press of a button. Automatic file translations allow your Mac programs to use your laptop files, directly!

Loader

Add-on connection program enables Model 200 and NEC8201 owners to use 100duet.

WP2duet

Turn your WP2 into a Mac-partner. Connect your laptop computer or Tandy Portable Disk Drive directly to Macintosh computers for file transfers at 19200 baud. Fast! Easy to use. Single or batch file transfers at the press of a button. Automatic file translations allow your Mac programs to use your laptop files, directly! Maintains file formatting codes.

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Four programs in one make this more than just a "super" ROM.

T-WORD: overwrite/insert mode while editing, imbed print controls, control print output (margins, line spacing, page feeds, headers, footers, auto page numbering, bold face, underline, italics, mail merge, labels, and more), pixel-plot view of document before printing. **T-BASE:** true relational base operations, key field sorts, math, report generation, etc. **IDEA!:** outliner program for concept development. **VIEW 80:** see up to 60 characters per line while in TEXT, TELCOM and BASIC, fast processing, easy to read. **TS-DOS LINK:** automatically loads and runs TS-DOS from disk without conflicts (TS-DOS on disk, sold separately).

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Super fast, easy access to your TPDD or TPDD2. Available for Models 100/102/200 and NEC8201. Features: file tagging, file printing direct from disk or RAM, direct access to disk drive from within BASIC or TEXT. Use by itself or with the Ultimate ROM II or other ROMs

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The very best programming tools available for Model 100/102/200 and NEC8201 laptop programmers. Two ROMs in one, and more. ROM2 is a full functioned 8085 macro assembler. Cleuseau adds much needed features to BASIC and TEXT. Call for full details.

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Rick Hanson, Club 100

Keyboard Bands

Just the right size dental rubber bands necessary to almost eliminate Model 100/102/200 keyboard noise. Great for library and meeting use. Easy to install. Instructions included.

Quick Reference Card

Don't leave home without this handy three-fold card, containing all the functions for Model 100/102 use. Includes a listing of BASIC, TEXT commands and TELCOM settings.

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The hottest, new line-attachment for going online though office PBX and hotel phones. Does not require a dedicated line. Active electronics provide much more than simple switching. Attaches, in-line, between the phone handset and the base. Includes clips for hard-wired base-to-handset found in most hotels. Small size - fits in pocket.

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Expand your Model 100/102/200/WP2 computer's RAM. RAM chips, RAM expansion modules and WP2 RAM disks available. (M100: 8K RAM chips, 64K and 96K RAM Exp Banks) - (M102: 8K RAM, 128K and 256K RAM Exp Banks) - (M200: 24K RAM banks) - (WP2: 128K RAM disk)

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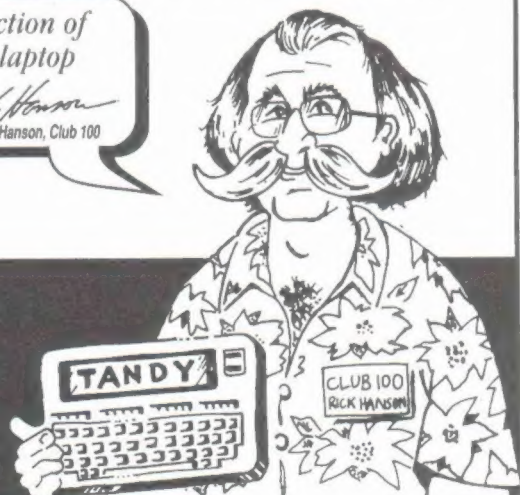
We have the largest "quality" collection of public domain, shareware and author-specific programs available for Model 100/102/200 users, i.e., text, print, telcom, business, graphics, drives, utilities, games, music, programming, education. Available online or mail order on disk. Listings available.

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ON THE COVER:

It looks like our cover person could have used WGTBAL.BA before he climbed into his plane!



TO BE . . . OR NOT TO BE?

by Paul Globman

You can't find the answer that easily, but with your Tandy 100, 102, or 200 helping you, you can at least make the best decisions possible!

8

BRINGING NELLIE

OUT OF RETIREMENT

by Gene Wilburn

Upgrade your Tandy 1400 LT to a 40MB LiteDrive IV from CMS Enhancements.

13



Tandy 102

SAFER FLYING WITH WGTBAL.BA

by Sean G. Dwyer

Use your portable and BASIC to make your flying easier and safer.

Written for the Model 100, 102, and 200 computers, but for any portable with BASIC.

17



Tandy 200

THANKS FOR THE MEMORY DOCUMENT STORAGE FOR THE WP-2

by Stan Wong

Exploring the storage limits of your WP-2 word processor.

22

CALENDAR: A LOOK AT THE THIRD OF DESKMATE'S "BIG THREE"

by George Sherman

More on Tandy's easy-to-use graphic interface for MS-DOS portables!

25



Tandy 600

MOVING UP: CHAPTER THREE

by Tony B. Anderson

More tips on moving up from a Model T to MS-DOS, plus shareware to make the going easier.

30

MODEL T BASICS: A "KINDER, GENTLER" COMPUTING

by Gene Wilburn

For the new owner of a Tandy 100, 102, or 200.

33



Tandy 1400LT

DEPARTMENTS

ROM WITH A VIEW

I/O

THE IDEA BOX

DEFUSR

PORTABLE 100 CLASSIFIEDS

ADVERTISERS' INDEX

Still more improvements.

Scholar-Chip Program

Less filling, tastes great!

Questions and answers

Software, hardware, wanted.

3

4

7

28

35

36

ROM WITH A VIEW

Ah, spring! When a young publisher's fancy turns to thoughts of Getting Eight More Pages. Normal humans, on the other hand, usually feel a newness and freshness in the world around them. A sense of rebirth and rediscovery.

Know what? I think the Model 100 is being rediscovered, too. Almost daily, people call who are "dusting off" Model T's they'd stashed in attics or closets when they moved to bigger, more powerful machines. They say they've missed the simplicity of the little lappers, the "kinder, gentler computing" Gene Wilburn describes in his column. So they dig 'em out, dust 'em off, and call us to see if we're still here. They're happy and surprised to learn that we are.

Then come the questions.

Can I add more memory? I remember somebody used to sell extra RAM. They still around? How 'bout those super-duper ultimate killer ROM thingies that do everything? Can I still get one? Huh? And much as I like this li'l 100, I still need my PC for some stuff—but I can squirt my files back and forth between 'em, right? Didn't someone once sell software to do that? So what kinda programs exist for these things nowadays, anyhow?

And on it goes. Rediscovery.

Then, too, there's new discovery. Look at Micheal Murphy's letter in INPUT/OUTPUT. California high school students are discovering the excitement of doing their schoolwork on Tandy 102's. They're not only gaining practical computer and typing skills, but building self-confidence and enthusiasm as well. And they're having fun doing it!

Just as important—perhaps more so—is that educators are discovering that equipping students with their own "personal laptops" is a powerful motivator. The program is catching on in a big way. "Snowballing!" says Murphy.

That's terrific, and we want to encourage more of it! If you'd like to see a similar school program offered where you live, please call or write to us. We'll try to connect you with folks who can help make it happen for your kids. In addition, we're offering special half-price subscription rates for students involved in such programs, and Tri-Mike Network East is offering very special rates on all PCSG ROM products for school use. We hereby encourage our other advertisers to do what they can to help.

Now, on to other business ...

Thanks to all of you who have written so far. We're glad to hear your suggestions, gripes, praise, and thoughts. Keep 'em coming! Almost all of you have said you care far more about *Portable 100*'s content than the paper it's printed on. (Thanks!) Still, we may have found a way to incorporate a nicer paper stock without substantially increasing our costs. As I write this, I don't know if we'll begin using it with this issue or next. Either way, we think you'll like it.

Our apologies to Joe Stephan (*MotorSports News Service Int'l*) for failing to properly credit him for the April '90 cover photos of Club 100 members. Thanks, Joe! And while we're apologizing ... Due to a space crunch, we omitted the NEW PRODUCTS section this month. (See why I still want those Eight More Pages?) It carried an announcement for MicroMime's new *PC-PDD* connectivity software, a multi-talented package that lets your PC swap files directly with WP-2's, Model T's, and portable disk drives (PDD's). It automatically translates WP-2 files during transfers, lets you browse DOS and PDD files, edit DOS files, jump to DOS and return, and much more, all with easy "point-and-shoot" operation! We'll run NEW PRODUCTS next month. Meantime, see MicroMime's new *PC-PDD* ad on page 15 and contact them.

Continued on page 30.

Toolbox

Manuscripts were typed into Microsoft Word 3.0 on a Tandy 1400 HD, where they were edited, spell-checked, and had basic format instructions inserted. From there they were loaded into a Tandy 4000 (80386 CPU, Tandy EGA Monitor, Tandy LP-1000 LaserPrinter) desktop computer and placed into Aldus' IBM PageMaker 3.01. Once there, design decisions on photo, figure, and listing sizes and placements were made. Here, pull quotes are placed, headlines, intros, and bylines are sized and positioned, and advertisements positioned.

Normally, the Tandy LP-1000 is capable of emulating only a Hewlett Packard Laser Printer Plus, but with the

addition of the Destiny Technology Corporation (300 Montague Expressway, Suite 150, Milpitas, CA 95035. (408) 262-9400) PageStyler 4.5MB kit, the LP-1000 is turned into a fully-compatible PostScript printer, with all 35 native fonts that are found in the Apple LaserWriter Plus printer. The Destiny PageStyler is available through the Tandy Express Order Hardware system.

Page previews were output from the Laserprinter. When everyone was satisfied with the appearance, final pages were output and artwork and lineart ads were positioned. The finished magazine was then delivered to the printer, who printed it, labeled it, and mailed it to you.

portable 100

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POSTMASTER: Send address changes to: *Portable 100*, Portable Computing International Corporation, 145 Grove Street Ext., PO Box 428, Peterborough, NH 03458-0428.

Scholar-Chip Program!

Thank you for sending me the copies of your magazine to give to the kids at Alhambra High School, Mark Kemple High School, and San Gabriel High School. We are looking for a source of funds to get each high school its own subscription and will send a check in as soon as possible. Your participation in our Scholarship Program would be very helpful to these kids as well.

The three schools have a total population of 10,000 students, and we hope to get twenty- to thirty-percent of them a Model 102. The students use the T102 to take notes during class and during events and outings, and to do their homework. They then upload the files to a PC and use Microsoft Works to apply the finishing touches. Currently there are over 200 Model 102's on campus.

The Scholarship Program is based on the results of an essay that the students will write on "How the Model 102 Has Changed My Life." We would like to involve your magazine by having you publish the winning essays. The kids that we are dealing with would receive a major boost in self-esteem in seeing their work in print.

Thank you again for your assistance and I hope you can help with our Scholarship Program.

Micheal Murphy
Radio Shack Computer Center
Montclair, CA 91763

Micheal, we would love to publish the winning essays. In addition, we will give each of the winning essay writers a three-year subscription. To the winner of the Scholarship, Tri-Mike Network East will also donate a Super ROM software package (a \$199.95 value).

-TK

WP-2/CHIPMUNK?

I recently purchased a Tandy WP-2 for business travel to replace my older Model 100. I read in the March 1990 issue of Portable 100, page 20, "Adding Memory to Your Tandy WP-2," the mention of the use of a Chipmunk floppy disk drive with a WP-2. I have a Chipmunk, serial number 3928, which I would like to adapt for use with my WP-2. Which raises some questions:

1. Who makes an appropriate cable to connect the two devices together?

2. What modifications do I need to

make to my existing cable to connect the two devices together?

3. Will the firmware that is built into the WP-2 to drive the Radio Shack floppy also drive the Chipmunk?

I will appreciate any help you can provide. And I appreciate receiving my monthly issue of *Portable 100*. Your magazine provides good information on the use of the various portable computers that I am familiar with.

James DeYoung
Engineering and Research
The Standard Register Company
Dayton, OH

Oops! Daniel Grotta made a mistake in his article. While the portable disk drives from Tandy will work with the WP-2, the Chipmunk won't. The portable disk drives work through the serial port of the WP-2, while the Chipmunk requires direct access to the system bus. Somehow we missed that error when we edited his article. The Purple Computing drives require other software.

**We will offer all 46
issues covering
September 1983 to
Summer 1989 as a
package at \$99.95.**

CONGRATULATIONS!

Congratulations on your new responsibility, Mr. Nugent. I know you have the qualifications to do an excellent job as publisher because it can truly be said with regard to the Model 100/102 and *Portable 100* magazine: "Mikey likes them!"

Here's something you can tell Terry Kepner: After reading his review of *PC Study Bible*, we ended up getting it. His was the first review I'd seen of it. My only regret is that it won't run on my Model 100. Otherwise, it is every bit as good as Terry's review said it is. During the Gulf War we used it to scan for references to Babylon.

I'm writing to thank whoever is responsible for sending the back issues of *PICO*. They finally arrived and were worth the wait. Enjoyable reading. I'm going through each of them cover to cover.

Best wishes for success.

John S. Neufeldt
Tucson, AZ

Thanks for the feedback on the review. We always appreciate hearing what readers think of our reviews and the products we write about. The feedback helps us stay on track.

Glad to hear you are enjoying the PICO's. By the way, readers, this summer is your last chance to get these back issues at the bargain price of \$39.95 for 36 issues. We're only selling a few each month, and it's not worth keeping them in the "warehouse" at that low turnover. In September we'll dump the remainder and use the space for Portable 100 back issues.

Speaking of Portable 100 back issues, Mike just decreed (using the royal "we," no less!), that we will offer all 46 remaining back issues covering September 1983 to Summer 1989 as a package deal at \$99.95, US shipping included (Canadian shipping is \$15 additional). That's a savings of almost \$3.00 per issue over the single copy rate! There are a couple of the issues that we have only in limited numbers (such as April 1988, only five copies left), so we'll include these at no extra charge to the first orders that come in the door. Five lucky people will get 47 issues for \$99.95 instead of only 46.

-TK

SPEAKING COMPUTER WANTED

I am twenty-four years old, and I have cerebral palsy. I am confined to a wheelchair. Four years ago we placed a TRS-80 Model 100 computer on the front of my wheelchair. Later, my dad wired an Entex Talker to the computer. It sounds like a recording and isn't plain. Do you know of a newer computer with built-in speech about the same size as the Model 100, combined in one unit? I would appreciate any information you or your readers can send me on new advances in this area.

Terry Sharp
Pearl, MS

Terry, I remember receiving information a few years ago from several companies who handled products for special needs, but I believe they're no longer

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doing so, now leaning more toward MS-DOS products, as so many other companies have.

I think that's a shame, because the Model 100 and similar computers are so lightweight, simple, inexpensive, and well suited to the job. I'd like to see more—not less—development of Model 100's for special tasks. And I think the technology and know-how are out there to do it. In fact, one of my recent editorials urged programmers and developers to push the limits of the machine and fully realize its capabilities. I hope that printing your letter in Portable 100 will further encourage that sort of effort.

Thanks for writing. I hope you and/or we will find a good solution.

-MN

USDA CHOICE: THE MODEL 100

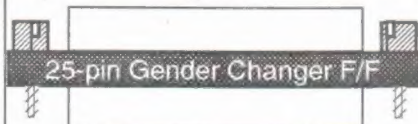
I renew for three years in the hope that P100 can last at least two more years. I subscribe for only two reasons: (1) to get hard, technical information on the T100/200 built-in software, so I can build useful interfaces to the outside world (e.g., my M100-based system which controls a 30-year-old isotope radio mass spectrometer in a USDA research lab), and (2) access to T100/200 vendors of enhancement hardware and software. The breezy yet trashy articles by Daigle, and the editorial space wasted on the exchange of irate readers, alarms me much more than your drift to MS-DOS. Please edit your submissions for high information content and not word count.

Adrian Swanson
Minneapolis, MN

Adrian, you sound like one smart dude. Can you share your developments with other like-minded readers? We'd be glad to publish them.

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I wouldn't call the space used in I/O wasted, it lets people air grievances and provides us with valuable feedback on what our readers want. If we didn't present a representative sample in the magazine, readers would think we didn't care and would stop writing.

-TK

'TIL OUR DYING BREATH!

Can't say I'm delighted with the new paper for P100, but I've supported every "orphan" computer ever known to man: Commodore 64, Apple II+, Sinclair, CoCo, Atari 800XL, Tandy 2000, TI-99, and a few more. From this it is obvious that I'm a typical (I think) computer nut. I still have each of those systems and enjoy every one. And I have seen many good/great magazines get thinner and thinner, and finally give up the ghost, Nibble for the Apple being the most recent. It looks like Rainbow for the CoCo will be the next. Still I subscribed to the very end, which I will do for P100.

I'm familiar with all the moves to save money, consolidate, and stay alive! It's not really the pretty paper, but what's on the paper, that counts.

As for Tandy, I worked for them for a year or so, and I have a Model 100, 102, 200, 600, 1400 FD, 2000 HD, 1000 EX, 1000 HX, 1000 SL, 3000 HL, CoCo II and III, and even the pocket portables! So I don't care which direction P100 goes in—it can't miss me!

I don't object to more MS-DOS coverage, especially if it helps the portable end of the magazine to survive in some form. But like others, I have plenty of PC magazines to subscribe to (and I do). So I'd like P100 to cover as much "portable" info as possible!

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Fax (503) 479-8089

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As a veteran, you know you can't make all the people happy all the time. I'm not sure it's worth the effort to try. I guess you should support those who support you! I think that's the best you can get in your business.

Anyway, I think you are doing a good job. I get something from the magazine, and I'll keep subscribing as long as I do.

You can't put as varied a style on your magazine as you'd like. I'm an adult. I'm not going to wax political or religious and "end my subscription" because I differ in opinion or feel it should be in "this kind" of magazine. If I get something from it for my money, I'll be back.

Re the letter from Prof. Hendricks (I/O, March '91): Good grief! His letter was the biggest waste of space in the magazine. I worked for Tandy. As far as I'm concerned, Juge is a "pinhead," and Tandy as a whole has a lot of faults (as well as good points ... er, good point). I like the humor and take Mike Daigle's opinions with a grain of salt. I have a mind of my own. I can read his articles and still use my own judgment to agree and disagree with him. But I'm not going to waste space boring your readers with more opinions! I enjoyed Daigle's response to the letter.

So keep up the good work. Thanks for keeping P100 going as long as possible.

Dallas Swindal
Hanahan, SC

As the commercial for a certain wine-cooler always says, "We thank you for your support!"



-TK

Text processing power that no other program can equal.

NOW
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on Snap-in[™] Cartridge \$99.

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Of all orders received between
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**TMNE says "Send it back in 30 days for a full refund
if you don't agree."**

WRITE ROM is the definitive word processing extension for the Model 100. PCSCG produced the first text formatter for the Model 100, now sold by Radio Shack as Scripsit 100. Now, 18 months later, PCSCG introduced WRITE ROM. Those who have experienced it say WRITE ROM literally doubles the power of the Model 100.

WRITE ROM — as its name implies — is on a snap-in ROM. You simply open the little compartment on the back of the Model 100 with a quarter and press WRITE ROM in. It's as easy as an Atari game cartridge. You can use other ROM programs like Lucid whenever you wish.

WRITE ROM lets you do every formatting function you'd expect, like setting margins, centering, right justifying and creating headers and footers. But it does them under function key control.

WRITE ROM remembers your favorite format settings so you can print a document without any setup, but you can change any formatting or printing parameter instantly with a function key.

WRITE ROM's "pixel mapping" feature shows you an instant picture on the screen of how your printout will look on paper.

In all there are 64 separate features and functions you can do with WRITE ROM, and some of these features are truly breakthroughs for the Model 100.

First, WRITE ROM lets you do search and replace. Any word or phrase in a document can be searched for and replaced with any other phrase where the search words appear.

Second, WRITE ROM lets you send any text (formatted or not) to any other computer over the phone with just a function key. What's more, it dials and handles sign-on and sign-off protocol automatically.

Third, WRITE ROM has a wonderful feature called Library that lets you record favorite phrases, words or commonly used expressions (often called boilerplate).

Any place you wish Library text to appear you just type a code. WRITE ROM automatically inserts the text just like a Xerox Memory Writer. Picture what you can do with that kind of capability.

WRITE ROM is blindingly fast. No one can claim faster operation. Because it is on ROM it uses virtually none of your precious RAM. It works with any printer, serial or parallel. You can make a duplicate copy of a document file under a new filename. Rename or delete (kill) any RAM file with function key ease.

This description only scratches the surface of this amazingly powerful piece of software. Dot commands allow control of such things as margins, centering, line spacing and other changes in the middle of a document. Most are WordStar[™] compatible.

A mailmerge feature allows you to send the same document to every name on your mailing list, personalized for each recipient.

WRITE ROM enables you to do underlining, boldface and correspondence mode as well as any other font feature like superscripts that your printer supports, in a way that many users say "is worth the price of the program."

To underline you don't have to remember a complicated printer code. You just type CODE u, and to stop underline, CODE u again. The CODE key is to the right of your spacebar. Boldface? CODE b to start and stop. Easy to remember and do. Five different printer features of your choice.

We couldn't list all the features here. For example, you can select not just double space but triple or any other. You can use your TAB

key in a document. WRITE ROM allows you to indent. This means you can have paragraphs with a first line projecting to the left of the rest of the paragraph. WRITE ROM has a feature unique for any word processor on any computer. It's called FORM. FORM is an interactive mechanism that lets you create screen prompts so that you or someone else can answer them to fill out forms or questionnaires.

With FORM, any place that you had previously typed a GRAPH T and a prompt in a document, WRITE ROM will stop and show you that prompt on the screen. You can type in directly on the screen and when you press F8 you see the next prompt. It goes to a printer or a RAM file.

Think how you can use FORM. A doctor or nurse could use it for a patient's history with each question appearing on the screen. An insurance salesman could use it for his entire questionnaire. You could construct a series of prompts to answer correspondence, typing the answers, even using Library codes. This feature lets you answer letters in rapid-fire fashion, each with personalized or standard responses.

Before WRITE ROM you had to be a programmer to create a series of prompts. Now it's as simple as GRAPH T.

PCSCG makes the claim that WRITE ROM is the easiest, fastest and most feature-rich formatter for the Model 100. We're happy to offer WRITE ROM because it expands the 100 to a dimension of text processing you cannot equal on even larger computers.

We brashly state that WRITE ROM is the best you can buy. But put that to the test. If you aren't as excited as we are, return it for a full refund. Priced at \$99. on snap-in ROM. MasterCard, VISA, American Express and COD.

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Zen-Lite

(Half the bytes, tastes great!)

Like most of you, my biggest complaint about the Model T has always been its diminutive memory. As a writer, I look at the end of available RAM the way a pilot taking off looks at the end of the runway: If you cross that line before you're ready, you're in big trouble.

There are some fine products out there that can be used to expand the memory available to your system, although that extra memory is usually made available as storage space rather than workspace. However, I recently had a flash of insight, a moment of lucidity brought on by either a glimpse of well earned illumination or a dose of Vick's DayCare.

In any event, the insight was that there are *two* ways to increase the memory available to a Model T: by putting hardware *in*, or by taking data *out*.

Zen-like, no?

Adding hardware to your Model T is certainly a viable option. There are several vendors out there (many of whom are listed in the pages of this magazine) who have found some very clever ways to get around the Model T RAM barrier. But if you can't avail yourself of any of these solutions, there is another way.

Simply strip any unnecessary data out of your Model T, thereby freeing up more RAM. Sound too simple? The most elegant solutions usually do.

For example, (hands, please) how many of you keep addresses and phone numbers in your Model T? Okay. Now, how about frequently needed information? And games? Uh-huh.

Well, I'm not suggesting that you stop carrying those things around with you. But I am suggesting that the Model T might not be the place to keep them.

I'm talking about using other equipment, either physical or electronic, to share some of the burden. Of course, this

would involve sitting down and rethinking your entire way of doing things to determine what info is and is not important enough to carry with you all the time. It would involve deciding where any surviving information should be kept. It would involve, in a nutshell, getting organized.

Ick.

Okay kids, pop quiz: What's the single best way to get organized? Relax, no fair, it was a trick question. There is no single best way to get organized. Everyone's needs are different, so each person needs to arrive at their own solution. However, there are certain common

Sound too simple?
Most
elegant solutions
usually do.

tools out there that you can use to help you fashion your own unique system.

These tools are called personal organizers. They come in two distinct flavors: electronic and physical.

The electronic organizers are probably familiar to you. The simplest of them usually incorporate a calculator with a simple phone number database that allows around 50 phone numbers to be tied to 50 names of eight characters or less. I've seen these for under ten dollars.

At the other end of the scale we have the "information appliance" typified by

the top-of-the-line Sharp Wizard OZ-8200. With a whopping 128K of on-board RAM, this little powerhouse sports a QWERTY keyboard and a very readable display with a familiar 40-column by 8-line output. It also accepts optional ROM cards that slide into the side and allow the Wizard to do anything from spell checking and thesaurus work to playing games to telecommunications, including fax capabilities. Portable power comes at a premium price, however—this remarkable device sells for about \$400, *without* any of the options.

(A brief side note here: I used to think it was only a matter of time before someone introduced a computer small and light enough to function as the "Model 300" we've all dreamed about. Now I'm starting to think that the real hope lies in devices like the Wizard getting a little larger and heavier. If the OZ-8200 were a little bigger, with a decent keyboard ...)

Anyway, nice as these electronic tools are, they do have their disadvantages. One is price. Another is value—there isn't a junkie around who could resist trading in your Wizard for a half hour high if you're unfortunate enough to leave it laying around unattended for a moment or two.

Another big drawback is fragility. I once spent two weeks painstakingly entering data into an older (non-QWERTY) Wizard, only to have it slip out of my hand one day. It fell two feet to the sidewalk. All the data was there—but half the display was non-functional. It may as well have cold started.

Most of the high-end electronic organizers allow you to backup your data to an IBM or Mac. But the software and cables cost more money, and it takes time to learn and to perform. At what point does it become too much trouble?

Okay, moving on, we come to physi-

Continued on page 12.

COMPATIBILITY:

Model 100, 102, and 200 (sometimes others, with changes).

To Be ... Or Not To Be?

Your computer can't answer that, but it can help you decide.

by Paul Globman

DECIDE.BA is designed to take the complexity out of complex decision making. When you must make decisions regarding multiple choices, and there are multiple factors affecting the choice, the decision making process becomes very cumbersome. Most of the time, complex decisions are made by gut instinct, because the complexity of the variables becomes too much for the human mind.

DECIDE.BA (Listing 1) will ask you a series of simple questions and offer you the best possible choice, based upon the input that you provide. At first this program might appear like a parlor game, and you may use it to decide what to have for dinner or which movie to view.

Have no doubt—once you understand how it works, you will be able to use it to decide what automobile to purchase or how to best invest your hard earned money. In generic terms it is a "situation evaluator."

When you first run DECIDE.BA the opening screen will appear as in Figure 1. To use the program for the first time you press F1 to enter a new subject. In the future you will be able to load files that were previously saved.

When you enter a new subject you will also enter the factors,

Factor (Weight)				Choice (Rating)			

Subj	Fact	Wght	Rate	Load	Save	Prnt	Menu
1	2	3	4	5	6	7	8

Figure 1. Opening screen of DECIDE.BA.

weights, and associative ratings. Once this data is entered you can use F2, F3, and F4 to modify or correct previously entered information.

When all required info is provided, the program will make the needed calculations and display the results. You will have the opportunity to save this evaluation as a file and to print it.

In order for the program to make correct evaluations, it needs the following input:

- Nature of the problem
- Number of possible solutions
- Possible solutions
- Number of deciding factors
- Deciding factors

```

Ø REM DECIDE.BA    copyright (c) 1989
1 REM      by Paul Globman [72227,1661]
2 MAXFILES=1:DIMR(1Ø,1Ø):KEYON:IFPEEK(1)
  =171THENLO=56ØELSELO=24Ø
3 ONKEYGOSUB15,16,17,18,19,2Ø,21,22:ONER
  RORGOTO77:ES$=CHR$(27):LL=LO+4Ø:GOTO8
4 GOSUB24
5 GOSUB32:GOSUB37
6 GOSUB43
7 GOSUB47
8 GOSUB49
9 PRINT@LO,STRING$(4Ø,232);:PRINT"Subj F
  act Wght Rate Load Save Prnt Menu";
1Ø K=Ø
11 ONKGOTO4,5,23,6,12,13,14:GOTO11
12 GOSUB67:IFX$="?"THEN7ELSE9
13 GOSUB73:GOTO9
14 GOSUB59:GOTO1Ø
15 K=1:RETURN
16 K=2:RETURN
17 K=3:RETURN
18 K=4:RETURN
19 K=5:RETURN
2Ø K=6:RETURN
21 K=7:RETURN
22 MENU
23 GOSUB37:GOTO7
24 CLS:PRINT"This program is designed to
  assist you":PRINT"in making decisions.
  Please enter the
25 PRINT"SUBJECT of your quandary. For
  example:":PRINT:PRINT"  which job offer
  to accept
26 PRINT"  which car to purchase":PRINT
  :LINEINPUT"SUBJECT =>";S$:IFSS$=""THENRUN
27 GOSUB66:PRINT"please enter how many C
  HOICES you have.":PRINT:LINEINPUT"Number
  of CHOICES =>";C$
28 C=VAL(C$):IFC>1Ø ORC<2THEN27
29 GOSUB66:PRINT"please list all"C"of yo
  ur choices.":PRINT:FORI=1TOC
3Ø PRINT"Option"I;:LINEINPUT"=>";C$(I):I
  FC$(I)=" "THEN3Ø

```

Listing 1. DECIDE.BA helps you make the best decision.

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Circle 37 on reader service card.

- Weight of each factor
- Significance of each factor as applied to each possible solution

Once this information is provided, the program will calculate the best possible solution by applying the "weight" of each factor to that factor as it applies to that possible solution.

Perhaps a sample run will be more enlightening. Suppose your task is to decide on an MS-DOS laptop computer.

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Circle 116 on reader service card.

```
31 C$(I)=LEFT$(C$(I),15):NEXT:RETURN
32 GOSUB66:PRINT"please enter how many f
actors you wish":PRINT"to consider.":PRI
NT
33 LINEINPUT"Number of FACTORS =>":F$:F=
VAL(F$):IFF>10 ORF<2THEN32
34 GOSUB66:PRINT"please list all"F"FACTO
RS.":PRINT:FORI=1TOF:W(I)=0
35 PRINT"Factor"I:;LINEINPUT"=>":F$(I):I
FF$(I)=""THEN35
36 F$(I)=LEFT$(F$(I),15):NEXT:RETURN
37 CLS:PRINT"Since some FACTORS are more
important":PRINT"than others, please as
sign relative
38 PRINT"values to each factor. A value
of 10":PRINT"is the highest weight and
1 is the":PRINT"lowest weight.
39 IFLO>320THENPRINT
40 PRINT"[ ";;FORI=1TOF:PRINTF$(I)W(I)"/
";;NEXT:PRINT"]":PRINT:FORI=1TOF
41 PRINTF$(I) " = ";;LINEINPUTW$:W(I)=VAL
(W$):IF(W(I)<=0)OR(W(I)>10)THEN41
42 NEXT:RETURN
43 FORI=1TOF:CLS:PRINT"Consider "ES$p"F
$(I)ES$q ONLY!":PRINT:PRINT"Rate the fo
llowing choices (0 is valid).
44 PRINT"[ ";;FORK=1TOC:PRINTC$(K) " / ";
;NEXTK:PRINT"]":PRINT:FORJ=1TOC
45 PRINTC$(J) " = ";;LINEINPUTR$:R(I,J)=V
AL(R$):IFR(I,J)=0 ANDR$<>"0"THEN45
46 NEXTJ:NEXTI:RETURN
47 CLS:PRINT" Evaluating...":FORI=1TO500
```

```
:NEXT:FORI=1TOC:T(I)=0:NEXT:FORJ=1TOC:FO
RI=1TOF:T(J)=T(J)+R(I,J)*W(I)
48 NEXTI:NEXTJ:RETURN
49 CLS:X=(34-LEN(SS))/2:FORI=1TOC:S(I)=I
:NEXT:FORSS=1TOC-1:FORS=SS+1TOC:IFT(S(SS
))>T(S(S))THEN51
50 T=S(SS):S(SS)=S(S):S(S)=T
51 NEXTS:NEXTSS:PRINT@X,"<<<"S$">>>":PRI
NT:PRINT"Factor (weight)":;PRINTTAB(20)"
Choice (rating)
52 PRINTSTRING$(40,"-");;IFC>FTHENX=CELS
EX=F
53 IFLO<320THENX=2
54 FORI=1TOX:IFI>FTHEN56
55 W$=STR$(W(I)):W$=RIGHT$(W$,LEN(W$)-1
):PRINTF$(I) " ("W$)";;
56 IFI>CTHENLPRINT:GOTO58
57 R$=STR$(T(S(I))):R$=RIGHT$(R$,LEN(R$)
-1):PRINTTAB(20)C$(S(I)) " ("R$)
58 NEXT:RETURN
59 X=(80-LEN(SS))/2:LPRINTTAB(X-5)"<<<"S
$">>>":LPRINT:LPRINTTAB(8)"Factor (weigh
t)":;LPRINTTAB(50)"Choice (Rating)
60 LPRINTTAB(8)STRING$(64,"-"):IFC>FTHEN
X=CELSEX=F
61 FORI=1TOX:IFI>FTHEN63
62 W$=STR$(W(I)):W$=RIGHT$(W$,LEN(W$)-1
):LPRINTTAB(8)F$(I) " ("W$)";;
63 IFI>CTHENLPRINT:goto65
64 R$=STR$(T(S(I))):R$=RIGHT$(R$,LEN(R$)
-1):LPRINTTAB(50)C$(S(I)) " ("R$)
65 NEXT:FORI=1TO10:LPRINT"":NEXT:RETURN
66 CLS:PRINT"To help you decide...":PRIN
```


You are given two possible choices: a Tandy 1400 LT, and a Toshiba 1200 FB. You must make a decision based upon price, LCD, keyboard, and portability. Just follow these steps:

- 1) Run *DECIDE.BA* and press F1 (Subj). At the Subject prompt enter *What laptop should I get.*
- 2) Tell the program that you have 2 choices: a) *Tandy 1400 LT*, and b) *Tosh 1200 FB.*
- 3) Tell the program that you are considering 4 factors: a) *Price*, b) *LCD*, c) *Keyboard*, and d) *Portability.*

- 4) Give each factor an equal weight of 5.
- 5) Use the example in Table 1 to assign relative ratings for each factor.

When the above info is entered, *DECIDE* will calculate the overall best choice. In this particular case the two choices will be equal, but that is because an equal weight was placed upon the various factors.

If you press F3 (*Wght*) you will be able to assign higher (or lower) weights to the factors that are important in making your decision. For example, if your need is for writing and you are a touch typist,

then *Keyboard* should be given a higher weight. If you will be using the laptop to assist in sales presentations, then you may consider a higher weight to *LCD*. If you spend more time carrying the computer than actually using it, then *Portability* would get the highest weight. Maybe you are on a tight budget. If so, then *Price* gets top billing.

If your decision is affected by several of the above factors, then you assign the weights accordingly.

DECIDE.BA not only allows for the changing of weights, but at any time you can also change the relative "ratings"



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RAMPAC, which is diagrammed on the left offers easy changeability and small size. Any number of RAMPACs can be shared with any number of Model 102 or 200's. A built-in 3+ year lithium battery (Duracell DL 2430) is user replaceable and protects data whether plugged into the laptop or not. Guaranteed the most cost effective RAM, the RAMPAC for the M102 or M200 sells for **\$129** in the 128K size and **\$169** for the 256K size. The DATAPAC, which is diagrammed below, is securely fastened underneath and to the back of the laptop with Velcro™. The DATAPAC is more permanently attached than the RAMPAC and its

wedge shape acts as "prop" legs for easier display viewing. It has been recently redesigned to double its former capacity and has a slimmer housing. The DATAPAC is available for the M100 or M102 only. Contact NODE for M200 information. It is

priced at **\$179** for 128K, **\$219** for 256K, **\$259** for 384K, and **\$299** for 512K. All prices include one copy of RAM disk software,

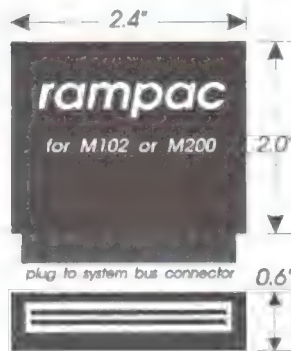
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	Tandy 1400 LT	Tosh 1200 FB
Price	9	5
LCD	7	9
Keyboard	9	7
Portability	3	7

Table 1. Sample data for deciding which computer to buy. Note: These ratings were derived from the September 1989 issue of Consumer Reports, page 568.

between choice and factor (use F4). And if you realize that you have omitted a factor, you can re-enter the number of factors and re-enter the factors, too (F2).

You can save (F6) whatever data you entered, and then reload (F5) that data at any time. F7 (*Print*) will print the results on your printer.

DECIDE.BA will allow up to ten

The main purpose of this program is to put you in touch with yourself.

choices and ten factors. You should select keywords to represent your choices and factors so they will display nicely on the 40-column screen (about 12 to 15 characters). After evaluating the choices, they are sorted and displayed with the best choice first.

If you are using a Tandy 200, all choices/factors will be displayed, but if you are using a Model 100/102, then only the *two best* choices will display (the entire set of choices and factors will be printed if you use F7).

COMMENTS: The provided example

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uses objective ratings between choice and factor (as derived from Consumer Reports), and subjective values for weights.

You may find yourself facing a decision where the factor weights are pre-determined, and it will be the relationship between factor and choice that are based upon personal feelings. Suppose you are about to hire a new employee and you have several applicants. You have given them each a written test, an in-depth interview, and you will also judge appearance and bilingual skills.

In this case you may know that the written exam gets a weight of 3, the interview weighs 4, appearance 2, and bilingual skills rates 1. Now these weights are not altered but the choice-to-factor scores are subjective.

The main purpose of this program is to put you in touch with yourself. If the highest score is not your first choice then you may want to reconsider the value you place upon the factors or ratings.

If you use this program often and are completely honest with your evaluation of factors/ratings, and the program agrees with your "feelings," then you will discover what motivates you. If *DECIDE.BA* does not confirm your choice, you can alter the variables until your choice is confirmed, and get a clear picture of your priorities and motivating factors.

Whether you use *DECIDE.BA* to assist in making your decisions, or adjust variables to discover your priorities, you will certainly benefit by using it. Use it often.

Paul can be reached by modem on CompuServe (72227,1661) and GENIE (P.GLOMAN), or by mail at 9406 N.W. 48th St., Sunrise, FL 33351 (please enclose SASE if you're requesting a reply).



```

T"      "SS",":PRINT:RETURN
67 PRINT@LL,ES$"V"ES$"KLoad from";:GOSUB
81:X$="
68 OPENSASFORINPUTAS1
69 LINEINPUT#1,X$
70 IFX$<>"?"THENERROR3
71 INPUT#1,S$:INPUT#1,C:INPUT#1,F:FORI=1
TOC:INPUT#1,C$(I):NEXT:FORJ=1TOF:INPUT#1
,W(J),F$(J):NEXT
72 FORI=1TOC:FORJ=1TOF:INPUT#1,R(J,I):NE
XTJ:NEXTI:CLOSE:RETURN
73 PRINT@LL,ES$"V"ES$"KSave as";:GOSUB81
:IFSA$=" "THENRETURN
74 OPENSASFORINPUTAS1:PRINT@LL,ES$"KOver
write "SA$"?";:CLOSE:AN$=INPUT$(1):IFAN$
<>"Y"ANDAN$<>"Y"THENRETURN
75 CLOSE:OPENSASFOROUTPUTAS1:PRINT#1,"?"
:PRINT#1,S$:PRINT#1,C:PRINT#1,F:FORI=1TO
C:PRINT#1,C$(I)
76 NEXT:FORJ=1TOF:PRINT#1,W(J):PRINT#1,F
$(J):NEXT:FORI=1TOC:FORJ=1TOF:PRINT#1,R(
J,I):NEXTJ:NEXTI:CLOSE:RETURN
77 IFERL=74THENRESUME75
78 IFERL=75THENBEEP:RESUME82
79 IFERL=68 ORERL=69 ORERL=70THENCLOSE:P
RINT@LL,"Can't Load";:FORI=1TO1500:NEXT:
RESUME82
80 PRINT"Error"ERR" in line"ERL:STOP
81 LINEINPUT": "SA$:PRINT@0,ES$"W
82 RETURN
    
```

End of listing 1.

T-200 Enhancement

XOS (Cross bank Operating System) will enhance your Tandy 200 and allow the three banks to share programs and data. XOS will bring a new level of computer functionality at the MENU, from BASIC, TEXT, and TELCOM.

From the Tandy 200 MENU you will be able to enter memos, rename files, set alarms, display and run programs that are in other banks, and much more.

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cal organizers. These run from simple appointment books to full "life organizers" like the hyper-expensive DayTimer.

Somewhere in the middle, you'll find the clever UNcalendar, which comes in three different sizes, from pocket to briefcase to desktop. It displays a full week per page, with empty compartments for all seven days, a "Things to do this week" box, and two smaller boxes used to record or highlight important information. Why is it the UNcalendar? Because the day of the week boxes have no dates on them—you write these in yourself. This makes it the perfect system for someone who decides to organize their life on a day other than January 1st.

Again, what you use is a personal decision. I liked the DayTimer concept, but I hated the price. Not only did the 7-inch by 9-inch 3-ring notebook binder cost \$30, but the replacement pages (calendar, address, goals, ideas, etc.) cost a small fortune. So, I did what any good cheapskate would do: I made my own.

I bought a 7-inch by 9-inch 3-ring notebook binder for \$3.95. I looked over the selection of DayTimer pages at my local store and "appropriated" some of the best ideas from each. I merged these with solutions to my own particular needs and used my 1100 FD to create

custom pages. I did this with *Qedit*, an amazing little shareware text editor that has superb line drawing capabilities.

Once the pages were done, I photocopied enough for a year's supply. The half-page format lets me get two working sheets per page. Next, I bought some index dividers to give me five sections.

The first is Time. I use custom "week at a glance" sheets in the front, followed by a monthly calendar in the back.

The next section is People. This is just a printout of my "Rolodex" file, an ASCII file created once again by the wonderful *Qedit*. The pages are printed on only one side, leaving me plenty of room on the back sides to add new names and addresses and phones. Once a month, I type all changes into the text file, print it out, and replace the older pages.

The third section is Information. Things that I frequently need are kept here, from metric conversion formulas to state abbreviations to commands for frequently used computer programs.

The fourth section is where I jot personal ideas and notes; the fifth section houses info related to my writing, including any current projects.

I did buy a few DayTimer goodies: A clear plastic page that holds 16-20 business cards in four compartments, and a

clear plastic pouch with a zip-lock type closure along the side. I use two of these: One holds pre-stamped postcards and envelopes, while the other holds small bits of valuable paper, like receipts.

Using packaging tape on the back, I've secured a calculator and a five-pen set (pen, pencil, felt-tip, and yellow and pink highlighters) to the inside front cover of the notebook. The inside back cover holds a notepad and two small squares of Post-It notepads.

This book really takes a load off my Model 102, while making me even more effective when I'm not at home.

Anyway, that's my system. Whatever system you use, the result of getting non-essential data out of your Model T remains the same: More room left for writing, programming, telecommunications, or whatever. And, using a physical organizer, your addresses and other info will be safe from the dreaded cold start.

And as for games, the Nintendo GameBoy is something to consider. It's as portable as the Model T, and it plays games much better. Sure, it's a little spendy, but you gotta do something with all that money you saved by making your own DayTimer, right?

by Michael Daigle

COMPATIBILITY: 1400LT.

Bringing Nellie Out of Retirement

A review of the CMS 40MB hard drive for the Tandy 1400 LT

by Gene Wilburn

"Nellie"—my MS-DOS Tandy 1400 LT portable—is the Jeep of my computer collection. She's too big, heavy, and awkward to use on the daily commuter train to Toronto. I use my Model 100 or my WP-2 for that. She can't come close to matching my desktop 386. She's not cute like my Mac. But Nellie is the one that goes with me to the cottage, on visits to relatives, and—often—to the kitchen table when I'm editing a manuscript and I want to see a full PC screen.

Nellie never was a glamor machine. She wasn't even my first PC portable—a Toshiba T1100 Plus had that honor. In fact, Nellie was an afterthought. After I had sold the Toshiba, I found I missed having a PC portable. Radio Shack was discontinuing the 1400 LT line, and I picked up one of the last of their stock. There were niftier machines on the market by then, but I'd used the 1400 LT before and liked two things about it: its bright backlit screen and its relatively decent keyboard layout. Besides, the price was right.

At first, I used Nellie a lot. I was comfortable with twin-720K floppy disk systems, and I mainly used text editors for my writing and editing. They were small enough to fit on floppy, and the 7.16 MHz V-20 processor, while no speed champ, was just fast enough to make the system usable. I could program on it using the *DeSmet C Compiler* which fit on a floppy and only needed 320K for use—allowing the other 320K of base RAM to be a RAM disk for holding the compiler, linker, and other necessities.

Then the world changed. MS-DOS programs got larger and larger. As a software reviewer for *Computing Canada*, I could no longer even test programs on Nellie. And when I moved from *DeSmet* to *Turbo C*, I could only do programming on my desktop PC. My office word



Connect your stock 1400 LT to a 40MB workhorse with the CMS Lite-Drive IV.

processor, *WordPerfect*, changed from the smaller 4.2 release to the much better, but bigger, 5.0 and then 5.1. My wife tried to use Nellie for her genealogical research, but the floppy disk storage was too confining.

Nellie began to be neglected. I knew she needed a hard drive to give her new life, but when I checked with Radio Shack, the 1400 LT drives in Canada were gone. History. And when I saw their sticker price I was shocked. A 20MB drive would have cost almost as much as I paid for Nellie in the first place.

Sadly, Nellie sat in the corner. I'd take her for a spin once in awhile—for old times' sake—but I'd changed, too. Most of my PC work now required a hard disk, and I was no longer interested in living with the limitations of a floppy system.

CMS LITEDRIVE-IV

Then Nuge nudged. "How would you like to review a hard disk for your 1400?" he asked. "Does a bear breathe in the forest (rough translation)?" I replied. Maybe there was hope for Nellie yet. Shortly thereafter a courier delivered a well-packed LiteDrive-IV from CMS Enhancements Inc., Irvine, California. A "40 Megabyte Hard Disk Drive Subsystem for the Tandy 1400 LT LapTop Computer." That sounded promising, I thought. With 40 megs Nellie could be a really useful system again.

Because of other commitments I couldn't turn to it immediately, so I saved the job of installation until a Friday night when my wife and son were staying at the grandparents overnight and I could schedule uninterrupted time to

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devote to it. Besides, I wanted my son out of earshot if things started to get tough. It doesn't set a good example for a son to watch his father rant, rave, and swear.

So, it was 9:00 PM and I was ready. I cleared my mind, I relaxed, I cleared my desk, I got out little envelopes to hold screws, I got Post-Its ready for labeling cables, and I got out my tools. I put the 1400 LT on the desk, opened the *Installation Guide*, and immediately encountered a dilemma. Page one of the introduction contains the following caution: "Installation of the LiteDrive-IV requires substantial disassembly of your laptop computer. CMS strongly recommends that this installation be performed by a qualified service technician."

Hey, I'm a software guy! I don't even own a soldering iron and, what's more, I never want to. I've never got my jollies by taking apart clocks or constructing ham radios. On the other hand, because I support PC's for a living, I've been inside hundreds of cases replacing cards, installing hard drives and floppies, setting jumpers, installing memory chips, troubleshooting, etc. Therein lay my dilemma: Was I or was I not qualified to undertake this project? In the end I decided I wasn't qualified, but I'd give it a try anyway.

So, working *very* slowly and labeling everything in sight, I started the installation. The *Installation Guide* lists 45 carefully articulated steps. I started working my way through them.

HARDWARE HACKING (LITERALLY)

Disassembling the 1400 is not a casual maneuver. There are screws everywhere, some of which are hidden behind stickers. While the installation guide tells you where the hidden ones are, it does not show them in an illustration. As I began prying at stickers on the bottom of the case with a tiny screwdriver I could only hope that I had it right. Fortunately, I did, because once you pry off the sticker, the sticker is *finis*. It is too damaged to be reused.

stickers to be removed that reveal two Phillips screws. "Remove the two screws," said the guide.

The one on the left side, though tight, came out okay as I carefully used a jeweler's Phillips screwdriver to remove it. The one on the right wouldn't budge. It was jammed. Now I'm a fairly patient person and I worked carefully and persistently to remove that screw, knowing I had to be careful not to strip the Phillips socket. It wouldn't move. I applied all the force I could, I broke into a deep sweat, I swore oaths to Odin, but nothing worked. Eventually I managed to strip the screw.

Crikey, I thought, what now? Do I call Nuge and tell him the review is off because I can't get a screw out? Do I let

I went to my garage and found a hacksaw!

Nellie down? Finally I got mad. This sucker's coming out, I vowed, and I went to my garage and found a hacksaw!

First I apologized to Nellie for what I was about to do, then I removed the blade from the hacksaw frame and wedging the tip of it into the hinge, I began sawing like a prisoner working on his prison bars—hand-holding the blade. I sawed and I sawed, and my hand got sore, but this drive was going to be tested! Finally I felt a clunk—I had cut through the hinge. Time spent: nearly an hour. I took a break, cleaned up the shavings, washed my hands, and doctored the cut I had somehow admini-

I removed the 10 screws from the bottom and had reached Step 5, which was getting the LCD screen ready for removal. It was there the project nearly came to a halt. The instructions were simple: Where the LCD hinges there were two more

stereos to my thumb. I had a beer. Only 40 more steps to go.

INSIDE THE 1400 LT

The rest was straightforward, methodical drudgery. I simply followed the *Installation Guide* step by step, carefully removing cables, unscrewing screws (no more battles), lifting out parts, and removing the right-hand floppy drive. The guide was clear and easy to follow, though I didn't always appreciate the humor as in "(Oops, a disaster)"—the warning about what would happen if you accidentally pulled some wires out of the power connector.

The actual installation involved mounting the drive where the second floppy had been, inserting the controller card into a slot under the drive, and attaching all the necessary cables. It was a tight fit.

The rest of the procedure was reassembling everything that had been removed or shifted. Again the guide was clear and careful in its instructions. Fitting the case back on was the trickiest part. Cables had to be carefully nudged into positions that kept them out of the way of other parts so that no bulges occurred.

When everything was reassembled I stepped back to take a look. Aside from a damaged hinge (definitely *my* responsibility) and a slight skew to the front panel of the drive (maybe and maybe not my fault), it looked ready to test drive. I was decidedly *not* about to open the machine again just to straighten the drive panel.

PREPARING THE DRIVE FOR USE

Good news! I turned on the machine. All the correct LED's flashed, including the hard drive activity light, and I got the correct message on the screen:

UNIVERSAL AT/XT FIXED DISK BIOS V 2.17

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The drive had passed the self test. Now I was on familiar ground—prepping the drive for software use.

The *Installation Guide* stated specifically that "you must use PC DOS 3.3 or MS DOS 3.3 for an IBM desktop computer or compatible." My 1400 LT came with Tandy MS-DOS 3.2. Fortunately, I run MS-DOS 3.3 on my desktop PC and I was able to create a 720K boot disk on the PC to use on the 1400.

The CMS LiteDrive-IV comes already low-level formatted. The next step was to use the MS-DOS master disk to FDISK

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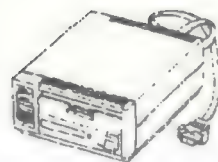
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the drive, setting up partitions. I elected to create a full 32MB partition for the C drive, allocating the remaining 8MB for the D drive.

After the partitions were created, both drives were formatted—*FORMAT C:/S/V* and *FORMAT D:/V* respectively. At this point they were ready to use.

SETTING UP DIRECTORIES

I created my usual system subdirectories—*DOS*, *UTIL*, and *BAT*—and copied the files in. I created a standard *AUTOEXEC.BAT* and *CONFIG.SYS* and booted the system. Aside from booting even more slowly than the 1400 LT does from floppy, the LiteDrive-IV came up fine.

The CMS-40 comes with a utility disk that contains the program *StopLite* that helps maximize battery life by turning the hard disk on only as needed and shutting it off at all other times. The program lets you specify the number of seconds the drive stays on after each access. You can adjust it for your environment.

I installed one essential personal application—*LetterPerfect* (a "lite" version of *WordPerfect 5.1*)—and tested it. It worked fine. Then I turned the system off and plugged in the transformer to let the battery charge fully overnight. Time: 12:00 midnight. The entire process took about three hours. It would have taken about two hours if there had been no stuck screw. Someone already familiar with the insides of the 1400 LT could probably install the drive in less than an hour, screws notwithstanding.

IN OPERATION

The next morning, when the battery had a full charge, I began writing this review using *LetterPerfect*. I purposely

ran the machine on battery power only. During the test I had *LetterPerfect* set to do an autosave every ten minutes, and I did a manual save every time I finished a section of writing. *LetterPerfect* makes very few accesses to disk for overlays

All the correct
LED's flashed,
including the
hard drive
activity light.

unless you run a spelling check or consult the thesaurus. For this session I did neither. I simply wanted to see how long it would run when there were few disk accesses. I deliberately did not invoke the CMS *StopLite* program during the test.

The LiteDrive-IV *Installation Guide* states that on a full charge the system should last two to four hours. I went just past three hours before the *LOW BATT* light came on and the system beeped. With more disk activity on the hard drive the session would have been shorter. If I had been using *StopLite* the session would have lasted longer.

The two-to-four-hour estimate from CMS appears to be realistic, depending on the state of your NiCd battery. This is a reasonable duration by portable PC standards.

I then installed and tested several MS-DOS utilities such as *Norton Utilities 4.5* and *SpinRite II*. *SpinRite* cautioned that it could not low-level format the drive. This was consistent with the warnings in the *Installation Guide* not to try any low-level formatting on the drive. Doing so could lead to damage. The *Norton Disk Doctor* and *Norton SpeedDisk* utilities ran fine on the CMS-40 drive.

QUIBBLES

I hit my first software snag with the CMS-40/DOS 3.3 setup when I tried to format a floppy. It formatted to 360K instead of 720K. When I gave it the old *FORMAT A:/N:9/T:80* command, I got an "invalid parameters" error.

This problem rang a bell, so I checked

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through my back issues of *Portable 100*. Sure enough, back in October 1988—"The Trail to a Working Hard Drive"—Stephen R. Lankton ran smack into this same problem when he installed a CMS 20MB drive in his 1400 LT. He solved it by transferring Tandy MS-DOS 3.2 to his system once it was formatted. That worked for the CMS-20, but it doesn't work for the CMS-40 unless you're willing to give up your D drive, which DOS 3.2 doesn't recognize. I didn't want to give up 8MB in order to be able to format a 720K floppy, so I've opted to format my disks on my PC instead. Although this is a relatively minor problem for me, it could be a major one for many potential purchasers of the CMS-40 if their 1400 LT is their primary PC.

And as Lankton reported, you also lose the use of RAMDISK.SYS when you install DOS 3.3. It is Tandy DOS 3.2-specific. This is unchanged—you still cannot use RAMDISK.SYS to gain access to the additional 128K of the 1400 LT as RAM disk. I find this a minor annoyance, partly because RAM disk becomes less important when you have a hard disk, and because 128K isn't much anyway. For some users, though, its loss could be maddening.

While it's true that CMS doesn't deal directly with end users, it *has* had three years to clean up its act on this. It could at least be explained in the *Installation Guide*, with suggested remedies, if any.

Another reviewer, Jim Berg ("Five Months with Twenty Megs," *Portable 100*, March 1989) reported that the CMS-20 power drain made his AC adapter noticeably hotter. My 1400 LT AC adapter always seems hot, so I can't tell if it's any hotter than before. Berg's review contains a schematic for creating an AC adapter with a higher amp rating.

Given my hardware skills, I think I'd try to purchase one somewhere instead.

CONCLUSION

I note that the previous two reviewers of CMS drives concluded that, despite their problems and frustrations, they were, overall, very happy with their purchases and considered the enhanced ability of their 1400 LT's to be worth the hassles. I concur. I'm voting with my wallet. Rather than returning the drive, I'm returning a cheque for its purchase.

The CMS LiteDrive-IV appears to be a solid investment for Tandy 1400 LT owners. No technical docs accompanied

**It records
an average
random-seek time
of 24.88ms.**

the product so I have no details about the type of controller it uses, the number of platters, or the average access speed. According to Lankton, the CMS-20 specified a 75ms access speed. *SpinRite* suggests that the speed of the CMS-40 is considerably faster. It records a full-stroke access speed of 44.84ms and an average random-seek time of 24.88ms.

Although I stated my quibbles (which

may be major complaints for some potential purchasers), I have no serious reservations about the LiteDrive-IV. It appears to be well constructed, it is quiet in operation, and it is relatively fast. My need to take a hacksaw to Nellie had nothing to do with CMS, nor can CMS be held responsible for some of the weirdness Tandy designed into the 1400 LT.

I look at it this way: Instead of sitting in the corner, neglected, Nellie is now being used again. I like her new-found capabilities. And I, for one, am grateful to CMS for making this drive available for an obsolete computer that I'm still rather fond of. You've brought Nellie out of retirement. Thanks!

Gene Wilburn is a Toronto-based computer systems manager and freelance writer. His CompuServe ID is 72435,732.

[Editor's note: For solutions to the RAMDISK.SYS, floppy formatting, and other problems in implementing DOS v3.3 on the Tandy 1400 LT, see the sidebar "Running DOS 3.3 on a Tandy," *Portable 100*, December 1989, page 10—MN]

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Model 100/102, 200, others with minor changes.

Safer Flying with WGTBAL.BA

Trees should eat kites, not aircraft!

by Sean G. Dwyer

Have you ever been at the controls of an airplane that is travelling at 75-80 mph, ten feet off the ground, and rapidly approaching a tree that is *much* higher than ten feet? Have you ever wondered why the tree was at the end of the runway in the first place, while simultaneously scanning the instruments for an indication why the aircraft nose just does not want to point skyward? Why this flight is not going as smoothly as yesterday's? Is the carburetor heat ON or OFF? How many degrees of flaps are lowered? Is...? (It's amazing how an 80 mph Towering Tree can expand the mind's capacity.)

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During "Hangar Flying" sessions most pilots will admit to having been in just that situation at some point in their

```
*****
Calculated Wgt of Aircraft = 2031.525
Calculated Center of Gravity= 87.68
Fore & Aft C.G. Limits= 88.12 & 94
>>>Aircraft will be nose heavy!
Run program again? (Y/N)
?
```

Figure 1. A sample run of WGTBAL.BA with 410 lb. in the front seat, 95 lb. in the back seat, 15lb. in the baggage compartment, 36 gallons of fuel, and 7 qt. of oil.

flying experiences. The problem was commonly caused by one or more of the following situations: out-of-balance aircraft, high density altitude, and/or overweight aircraft. Now we come to why this article appears in a computer magazine: A light-weight portable computer can provide a pilot with a rapid and on-the-spot means of calculating weight and balance, density altitude, and aircraft performance under particular meteorological and topological conditions, in addition to access to aviation weather reporting services. Importantly, it does

not take a computer whiz or a mathematical genius to custom write the programs to a particular aircraft. This author is neither, and is an amateur at both programming and piloting. The program WGTBAL.BA (Listing 1) takes up a mere 1.6K, and so is small enough to leave on a Model 100/102 without consuming too much memory. It was written for a Piper Cherokee PA28-140 with the designation N4500R. For people not familiar with

WHY WORRY?

"All this for a 4-seat Cherokee?" you ask. "ESPECIALLY for a 4-seat Cherokee," is the reply. It may surprise many to learn that most 4-seat general aviation aircraft cannot take full fuel with two hefty people in the front seats and nobody in the back. Add weight to the back or have one of the heavies sit back there and there may be no problem. Frequently the problem is *balance* (i.e., how the weight is distributed) rather than the *weight* itself. If the center of gravity is too far forward, the pilot may not be able to raise the nose of the aircraft enough to clear the Towering Tree. A center of gravity that is too far aft could cause the aircraft to get into a flat spin. Faster airspeed would provide more control in either case, but that may not be available immediately after take-off or on final approach to landing, hence the need to know how to load the airplane properly in the first place.

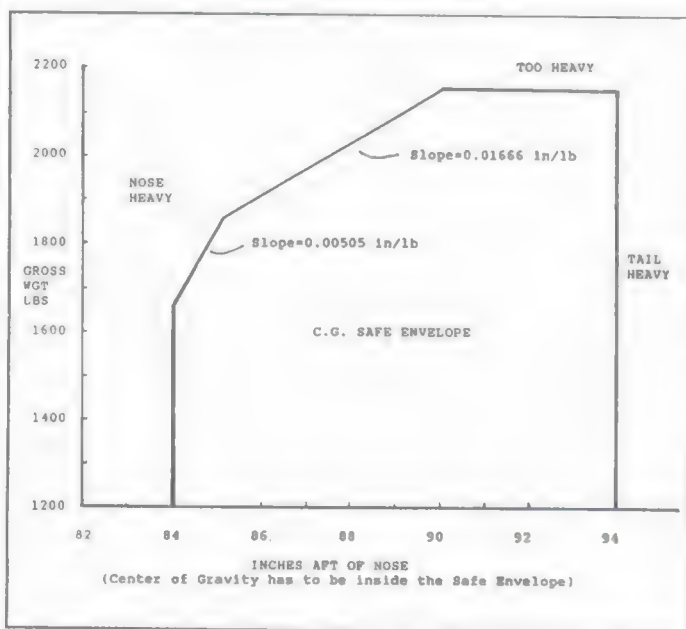


Figure 2. A typical center-of-gravity safety envelope.

aviationspeak that is "November Four Five Zero Zero Romeo" or "Zero Zero Romeo" for short. Not that the name is important, which it isn't, but it is important to understand that each individual aircraft has its own unique weight and center of gravity which changes as people, fuel and radios and other equipment are added or removed. The objective of WGTBAL.BA is to provide rapid feedback as to how much fuel can be safely taken on board Zero Zero Romeo and where the passengers should sit.



TS-DOS

My favorite Disk Operating System

A Product Review
by Richard Hanson
Founder Club 100

It's time to pack the trailer, hitch up the truck and head for the hills. I look forward to quality time with my wife and our two dogs. To relax and enjoy life a bit. To get away from it all. To commune with nature and breathe some fresh California mountain air. But before we leave, I better make sure we've got everything we need, including, of course, the computer. Ah yes, you may laugh and make fun but the work of a computer nerd is never done. But should I bring the Model 100 or the 200? And which disk drive? The TPDD1 or the TPDD2? Well, I'll pack both computers and both drives. Heck, there's plenty of room in the trailer. Besides, both Paula and I enjoy using our laptops; they're great thinking tools.

I plan on writing stuff. Nothing fancy, just lots of stuff. I'll use the TEXT program, built into the laptop, but will need disk access. Something fast, dependable and easy to restart after a cold start. I choose TS-DOS on ROM. TS-DOS is the only disk operating system available on ROM for the Tandy, Radio Shack Model 100, 102, 200 and

NEC PC8201A laptop computers. TS-DOS is also available on bootable disk for all four computers and both drives. TS-DOS on disk requires only 6,500 bytes to operate. TS-DOS on ROM has no RAM requirements since the program runs from the ROM.

TS-DOS's easy to use menu presentation works like the built in Model 100 menu. You simply move the bar-cursor to the file you want then use the function keys and features of TS-DOS to manipulate that file. TS-DOS contains two menus: RAM File Menu, and Disk File Menu. Function keys and features act on files in the current menu. You go from the RAM File Menu to the Disk File Menu and back again with the [F4] function key.

RAM File Menu...

[F1] Save - copies the selected file to disk - prompts the user with A)ppend R)eplace or Q)uit, [F2] Kill - deletes the selected file, [F3] Name - rename the selected file, [F4] Disk - goto the Disk File Menu, [F5] DOS-ON/OFF - enable/disable the resident portion, [F8] Menu - return to the laptop menu,

Disk File Menu...

[F1] Load - copies the selected file to RAM - prompts the user with "Replace?", [F2] Kill - deletes the selected file, [F3] Name - rename the selected file, [F4] RAM - goto the RAM File Menu, [F5] Frmt - formats diskettes, [F6] Log - re-looks at the current disk in the drive, [F7] Bank - switches between bank 0 and 1 on the TPDD2, [F8] Menu - return to the laptop menu,

Features...

[T] - selection multiple files to Save, Load, or Kill, [G] - global tag for

all files at once, [U] - remove tags, [P] - prints the selected file - SPACE/pause, ESC/cancel, [L] - display the selected file on the screen - SPACE/pause, ESC/cancel, [D] - prints the directory of the disk - using compressed mode you can make 3.5" diskette labels, [R] - compress/expand .DO files by 30% (ROM version only - works on files in RAM).

The resident portion of TS-DOS allows direct disk access while in TEXT and BASIC.

Commands in TEXT...

[F2] - load file from disk while in TEXT - appends file into current text at point of cursor - (0:filename), [F3] - save file to disk while in TEXT - will overwrite existing file - (0:filename),

Commands in BASIC...

CLOSE, EOF, INPUT\$, INPUT#, KILL, LFILES, LINEINPUT#, LOAD, LOADM, MERGE, NAME, OPEN, PRINT#, PRINT\$USING, RUN, RUNM, SAVE, SAVEM,

TS-DOS is my choice for disk access to the Tandy Portable Disk Drive. It's fast, dependable, convenient and feature-rich. The ROM version is my choice when I am not using another ROM. TS-DOS is available from Club 100. TS-DOS ROM \$49.95. TS-DOS Disk \$39.95

Order TS-DOS...

Include the following information when ordering TS-DOS: 1) ROM or Disk, 2) computer model (M100/102, M200, NEC8201), and 3) disk drive model (TPDD 100K, TPDD2 200K). Calif res add 7% tax. \$3 ship. Visa, Master Card, Money Order, Check. Club 100, P.O. Box 23438, Pleasant Hill, CA 94523 - (415) 932-8856, 937-5039 fax, or 939-1246 bbs.



A Tribute to Traveling Software's LAPDOS II

A Product Review
by Richard Hanson
Founder, Club 100

No other program impacted the use of the Model 100 as much as Lapdos. Developed by Traveling Software back in the mid 80s, Lapdos helped make Traveling Software the worlds leading 3rd party support vendor in the Tandy laptop marketplace. Lapdos was originally developed to transfer files between a Tandy Portable Disk Drive (TPDD) and an IBM PC or compatible computer.

Upon receiving Lapdos, one simply connected their TPDD to the COM port of their PC, via an adaptor, and ran the LAP.EXE program. The users screen would split vertically, showing the PC's files of the currently logged drive on the left, and the contents of the disk in the TPDD on the right. The bottom of the screen displayed a simple menu.

The Lapdos menu...

```

Help  Log  View  Copy
Wildcopy  Format  Erase
Rename  Goto  Xchange
Setup Quit
  
```

Using this simple menu Lapdos users control all aspects of file movement between their PC and their

TPDD--at 19200 baud.

Within a few years, Lapdos became Lapdos II, version 1.42, where it stays today. The "II" version did all that the original version did, and more. The additional features included a TSR option, allowing the user to run Lapdos II in the background and pop it up at will, and nicer internal operations. The biggest change was an expensive, multi-headed cable and a program called LOADER. LOADER and the new cable allowed the user to connect their laptop (Model 100, 102, 200 or NEC PC8201A) or a TPDD, or the new TPDD2, directly to their PC. LOADER pumps a program called LAPDOS.BA into the laptop, which, when run, emulates the TPDD. Thus, LAP.EXE, running the PC, looks at the laptop as a TPDD--simple--well executed.

So much has been said about Lapdos yet too few laptop computer owners know its power. Informed sources reveal that there are over 1.5 million Model 100, 102, 200 and NEC PC8201A computers still in use today. Estimates make it that less than 1/10th of these owners own Lapdos. Yet, over 1/2 of these folks use DOS machines, as well as their beloved laptop. Similar figures cover Macintosh / Model 100 users, but that's a different story for a different time--except to say that Traveling once had a similar, quality, easy to use, and powerful program called Macdos II, which was upgraded by its original author, Scott Anderson, Pres., Cabochon, Inc., and is now called 100duet; sold by Club 100, of course.

Due to changes in the computer marketplace in 1989, Traveling Software discontinued their laptop support product line. Lapdos was gone. The year, 1989 was called the "dark ages" in Model 100 history. We [Club 100]

were determined to improve this dismal situation. Thus, after several months of negotiations, Traveling Software's president and founder, Mark Eppley, granted Club 100 the exclusive rights to revive their product line--including Lapdos. And the Model 100 "renaissance" was born--it was March, 1990.

March was a special month for us at Club 100. We revived the Traveling Software product line, starting in March, 1990. Thus, it is fitting to pay tribute to both Traveling Software, and Lapdos II. Indeed, with a joy in our hearts and a smile on our face we offer a BIG, WET, WARM THANK YOU to Mark Eppley, and the whole gang at Traveling Software, for the honor and privilege they granted us, and thus the opportunity they afford all our members. So, with our glasses raised high at our March 9th meeting, we offer this toast: "To Traveling Software... to Mark Eppley... viva LAPDOS!"

Order Lapdos II...

Lapdos is just \$39.95. You will need a Computer<-->Link cable to physically connect the two computers, just \$17.50.

Include the following information when ordering Lapdos II:

- 1) PC disk size, either 5.25 or 3.5
- 2) Computer<-->Link cable COM port size, either 25 pin or 9 pin

Calif res add 7% tax. Include \$3 ea item for shipping. Please call if you have any questions. Visa, Master Card, Money Order, Check. Club 100, P.O. Box 23438, Pleasant Hill, CA 94523 -(415) 932-8856, 937-5039 fax, or 939-1246 bbs.

HOW THE PROGRAM WORKS

Of the forty-two lines in WGTBAL.BA, only thirteen are specific for Zero Zero Romeo. These are line 80, which contains the N-Number, and lines 300-391. All of the other lines would apply to any aircraft. The steps in the program are as follows:

Lines 120-160 ask for input of the weights of passengers, fuel and oil for a particular flight. The ability to rapidly determine the impact of changes in these or their locations is the primary value of WGTBAL.BA. Frequently, I would not know how much fuel was in the airplane until after arrival at the airport. This point alone sets the portable computer apart from its desktop brethren.

Lines 300 and 305 provide the maximum allowed weight (2,150 pounds), the current empty weight (1,282.4 pounds) and the center of gravity of the empty aircraft (85.01 inches from the nose). This information will remain constant until a radio is replaced, a seat is removed, etc., and is unique to Zero Zero Romeo. Also included in line 305 are the forward and aft (rearward) limits of the

C.G. (center of gravity) safety envelope when the airplane is lightly loaded. Every aircraft type and model has a documented center of gravity "envelope" which specifies the forward and aft limits of the C.G. at different weights. In a Cherokee PA28-140, these limits are respectively 84 inches and 94 inches from the nose when the aircraft is lightly loaded (line 305). As gross weight of the loaded aircraft increases, the forward C.G. limit moves backwards and thereby complicates the calculation task.

Line 310 adds up all the weights of the aircraft, fuel, passengers etc and calculates a gross weight for the proposed flight.

Line 320 adds up the products of the individual weights in pounds multiplied by their distance from the nose in inches (the Arm) and calculates the Moment of the loaded aircraft in inch pounds. Division of this number by the gross weight provides the C.G. of the loaded aircraft in line 330.

Lines 340 and 350 take into account the fact that the forward limit of the C.G. moves aft in a stepwise fashion (at 1,650

pounds and 1,850 pounds) as the gross weight increases. (The aft C.G. limit is always 94 inches from the nose for this aircraft.) Below 1,650 pounds total weight the forward C.G. limit is 84 inches, which is the default number already input in line 305. Accordingly, no calculation is necessary and the program skips to line 900. Between 1,650 and 1,850 pounds gross weight the forward C.G. limit (P or S) is 84 inches plus the product of the weight in excess of 1,650 pounds (N) and the slope (0.00505 inch/pounds) of the C.G. envelope (see lines 385 and 386). A similar calculation is made for gross weights between 1,850 pounds and the maximum allowed gross weight (2,150 pounds) in lines 390 and 391. In these calculations, variables Q and R are used to truncate P and yield S in two decimal places. Otherwise S and P could be used interchangeably at any particular weight.

THE OUTPUT

That completes the calculations. Now all that is left to do is compare the actual gross weight and C.G. with the allowed

```

10 REM WgtBal.BA for calculating Aircraft
  Weight & Balance (c) Sean G. Dwyer 12/
  29/90
80 PRINT:PRINT:PRINT "To calculate Wgt &
  Balance for N4500R:
100 PRINT:PRINT "=====
=====
120 PRINT "Wgt of Pilot & Front Passenger
  ?":INPUT A
130 PRINT "Wgt of Back Seat Passengers?":
  INPUT B
140 PRINT "Wgt in Baggage Compartment?":I
  NPUT C
150 PRINT "How many gallons of fuel?":INP
  UT D:E=6*D
160 PRINT "How many quarts of oil?":INPUT
  F:G=1.875*F
300 REM Data for N4500R, Empty Wgt 1282.
  4 Lbs, Center of Gravity 85.01 inches af
  t of datum
305 L=2150:K=1282.4:S=84:J=94:REM Max Gr
  oss Wgt, Current Empty Wgt, default fore
  and aft C.G. limits
310 W=A+B+C+E+G+K:REM Gross Wgt
320 X=A*85.5+B*117+C*133+E*95+G*32.5+128
  2.4*85.01:REM MOMENT IN INCH LBS
330 Y=X/W:T=100*Y+.5:U=INT(T):V=U/100:RE
  M CALCULATION OF CG
340 IF W<1650 THEN 900
350 IF W>1850 THEN 390
385 N=W-1650:P=84+.00505*N
386 Q=100*P+.5:R=INT(Q):S=R/100:GOTO 90
  0
390 N=W-1850:P=85.1+.01666*N

```

```

391 Q=100*P+.5:R=INT(Q):S=R/100:GOTO 900
900 PRINT "*****
*****"
905 RV$=CHR$(27)+"p":NV$=CHR$(27)+"q"
910 PRINT "Calculated Wgt of Aircraft ="
  ;W
920 IF W<(L+1) THEN 930
925 PRINT RV$;">>>Aircraft exceeds Wgt L
  imit of";L;NV$
927 GOSUB 1010
930 PRINT "Calculated Center of Gravity="
  ;V
940 PRINT "Fore & Aft C.G. Limits=";S;" &
  ";J
950 IF Y>S THEN 960
955 PRINT RV$;">>>Aircraft will be nose
  heavy!";NV$:GOSUB 1010
960 IF Y<J THEN 980
965 PRINT RV$;">>>Aircraft will be tail
  heavy!";NV$:GOSUB 1010
980 PRINT "Run program again? (Y or N)":I
  NPUT Q$
990 IF Q$="N" OR Q$="n" THEN 1000
991 IF Q$="" THEN 980
995 A=0:B=0:C=0:D=0:E=0:F=0:G=0:PRINT:PR
  INT:GOTO 100
1000 END
1010 Z=1:REM Alarm for overweight or out
  -of-balance follows
1015 H=783
1020 SOUND H,1:H=H-38:Z=Z+1
1030 IF Z=40 THEN RETURN
1040 IF H<415 THEN 1015
1045 GOTO 1020

```

Listing 1. WGTBAL.BA makes safer flying by helping you determine and adjust the proper amount and distribution of weight within your aircraft.

The Beginner's Guide to the WP-2

A 26-page booklet that tells you everything you need to know about the WP-2—what it can do, what it can't do, and how to use it with tape cassette, disk drive, and other computers. It even includes the cable instructions for connecting it to Macintosh and IBM-compatible computers! If you own a WP-2, or are thinking of buying one, then you must have this book! Order today!

Only \$9.95 (plus \$1.00 S&H)

Portable 100-WP-2 Booklet, POB 428,
Peterborough, NH 03458
Visa, MC, & AMEX accepted

Circle 13 on reader service card.

limits (lines 930-960) and determine whether they indicate a safely and legally loaded aircraft.

If the aircraft loading is within the C.G. safety envelope, the program would print the calculated gross weight and C.G. of the aircraft, along with the fore and aft C.G. limits for that gross weight. In the event that one of the three possible transgressions (Overweight, Nose Heavy or Tail Heavy) had occurred, the program would alert the pilot in no uncertain terms.

Surprisingly, I found that many pilots would read the words:

*Aircraft exceeds the Wgt Limit
Aircraft is nose heavy
OK*

...and see only the word OK. (Pilots refer to this blindness as "fixation"—the mind focuses on what it wants to see.) If the aircraft was improperly loaded, why would the program print OK at the end of the calculation? Well it didn't. The OK came from the Model 100's BASIC. In order to avoid being fooled by the errant OK, lines 905, 925, 955, and 965 provide the alert notices in inverse print. Just in case that is not enough warning, lines 1010-1050 provide a "whoOP whoOP whoOP" type audible alarm (on a Model 100/102) when an unsafe condition is indicated. Just in case all this was not enough, the program was rewritten so as to end with a question: *Run program again?* (lines 980-1000) and bypass the OK altogether. That OK combined with the Towering Tree could have been fatal!

EXPANDABILITY

Although I have as much chance of owning a space shuttle as I have of owning a second airplane, the program could easily be adapted to handling sev-

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Circle 81 on reader service card.

eral aircraft. For example:

```
90 PRINT "Enter N-number of
Aircraft: "; INPUT N$
91 IF N$="N4500R" THEN 300
92 IF N$="N1234X" THEN 400
```

(Weight and Balance data for N1234X should start on line 400).

Variables used in WGTBAL.BA.

- A = Weight in Front Seats, Arm = 85.5
- B = Weight in Back Seats, Arm = 117
- C = Weight in Baggage Compartment, Arm = 125
- D = Gallons Fuel @ 6 lb/gal, Arm = 95
- E = Weight of Fuel
- F = Quarts Oil @ 0.9375 lb/qt, Arm = 32.5
- G = Weight of oil
- K = Empty Weight = 1282.4, Arm = 85.01
- J = Estimated Aft C.G. Limit
- L = Maximum allowed Gross Weight
- N and P are used to calculate S when the CG/Weight slope changes above 1650 Lbs
- S = Estimated Forward C.G. Limit after truncation to 2 decimals via Q and R
- V = Estimated C.G. truncated to 2 decimal places using Y, T, and U
- W = Estimated total Weight of loaded Aircraft
- X = Estimated total Moment of loaded Aircraft

Table 1. The variables used in the WGTBAL.BA program and their definitions.

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Model 200 ROM with database, wordprocessing, appointment calendar & expense tracking

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Spreadsheet ROM for model 100

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Add \$3 postage & handling. Texas residents add 7.25% sales tax. Send for our model 100 & model 200 software catalog.

Circle 151 on reader service card.

SOME EXAMPLES

Now back to the Towering Tree ...

If I weigh 185 pounds and my buddy Mike weighs 225, that amounts to 410 pounds in the front seats. My son Malcolm weighs 95 pounds in the back seat. There is 15 pounds of "stuff" in the baggage compartment, 36 gallons of fuel, and 7 quarts of oil.

whoOP whoOP whoOP ... AIRCRAFT IS NOSE HEAVY ...

"Mike, would you mind trading seats with Malcolm? There's this Towering Tree at the end of the runway ..."

If you run the numbers again, with Mike in the back seat, you will find that we could safely carry the maximum 50 gallons of fuel! With him in the front seat we would have had to limit ourselves to 30 gallons, a difference in flying time of well over two hours. Worse still, we would have had to drain 6 gallons of gas out of the tank (Is this why you shouldn't smoke at airports?).

Some of the frustration involved in having to squeeze a big man into a back seat while a child sits up front can be attenuated by showing how the numbers work out on the laptop (including the accompanying whoOPs).

Is this program for you? If so, it should be customized to your own flying situation and checked out to verify that it is providing the right answers for your plane.

Sean G. Dwyer, PhD, is a chemist with two passions: flying and laptop computers. He can be contacted at 72637,1716 on CompuServe and is a frequent visitor to the Model 100 Forum (GO M100SIG).

Thanks for the Memory: Document Storage for the WP-2

"I've a grand memory for forgetting."
Robert Louis Stevenson

by Stan Wong

In this month's column I'll discuss the WP-2 itself rather than how to use the machine. I'll concentrate on WP-2 memory for document storage, both internal and external memory.

The WP-2 is advertised as a 32K machine. When you get the machine out of the box and turn it on, the *Files* menu says you have about 22K free bytes of memory. What happened to the other 10K? Were you cheated? Well, sort of.

The "missing" 10K of memory is used by the WP-2 for system tasks and for system storage. The remaining 22K can be used to store your documents. This works out to be equivalent to 9-10 pages of single-spaced typewritten sheets of paper.

If you're using the WP-2 to write letters, 9-10 pages of storage is plenty, but if you're writing your term paper or research project, 22K can be limiting. One person I know spends his days in libraries writing research notes. He can fill up the 22K before the day is over, so he obviously needs a convenient way to hold more data while away from home.

The WP-2 comes with a number of options for additional document storage. I'll divide these into three categories: internal, external, and non-WP-2.

INTERNAL STORAGE

Internal memory expansions are designed to fit within the WP-2 case. They add almost no weight and take up no additional space. The extra power drain is minimal.

You have only two options for internal storage. Tandy and third party vendors sell a 32K memory expansion chip. This additional memory is configured as a RAMdisk—you can't use the memory for editing documents. Think of it as a 32K disk drive (with no moving parts)

inside your machine. Even with a RAMdisk you're still limited to editing documents no larger than 22K.

Several third party vendors sell a 128K memory expansion chip. That works out to about 50 typewritten pages of storage, enough for all but the most prolific writers. Look for the advertisements of Purple Computing, Micro-Mime, and Club 100 in this magazine.

These expansions are monolithic memory. That is, they are "standard" IC chips rather than circuit cards made up of memory and other interface circuits

What happened to the other 10K? Were you cheated?

mounted on a printed circuit card. Model 100 users are probably familiar with the internal memory expansions of the non-standard kind from PG Design and American Cryptronics/PCSG. The WP-2 has a built-in memory socket that will accept a standard memory part. This keeps the cost of the add-in memory low.

Additional add-in memory does have a minor drawback in the form of decreased battery life. This memory is designed to operate in two modes: operating and standby. The standby mode allows the WP-2 to put the memory chip into a low-power consumption mode when it's not being accessed.

The bad news is that standby current is required all the time, even when the

machine is off. This is necessary to maintain the contents of the memory (i.e., your precious prose). Should that power ever go off, your documents would evaporate. The good news is that the normal operating mode is engaged only when reading from or writing to a file in the RAMdisk memory, which only lasts for fractions of a second.

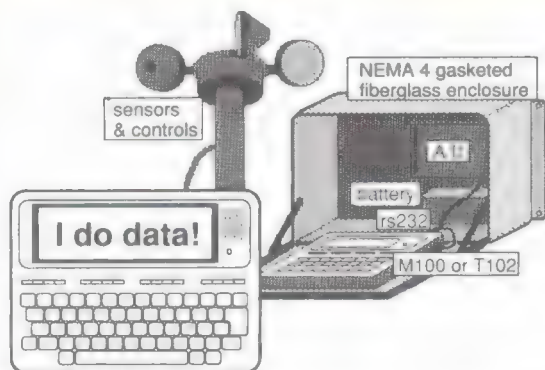
The WP-2 has two sets of batteries. Four AA cells comprise the operating batteries, which provide the main power for the machine when you press the blue power button. And a lithium coin-type battery provides a constant, small amount of power to the RAMdisk and main memory when you turn the machine off, so your precious prose doesn't evaporate into the ether.

Tandy rates this lithium backup battery with a useful life of three years. With the Tandy 32K RAMdisk installed, that decreases to 1.5 years. And given that manufacturers' ratings are usually optimistic, I would de-rate this to 2.5 years and 1.25 years, respectively. When it comes to your data it pays to be safe. Unfortunately, you won't find this information in your owner's manual. It's buried in the WP-2 service manual.

EXTERNAL STORAGE

External memory expansions are temporary add-ons. Options include a cassette recorder, 3.5-inch disk drive, and a memory card.

The cassette recorder is probably familiar to long-time Tandy enthusiasts. The cassette recorder has long been the standard in low-cost storage of computer data. On the down side, recorders have been known to be relatively unreliable in terms of data retrieval. They are slow. They don't store much data. But they *do* work. The standard Tandy CCR-



The OWL is our M100/T102-based **On-site Weather Logger**. In addition to the computer, the OWL consists of our analog-to-digital hardware to convert sensor readings into digital form, *HOOT* software to direct the process and display the results, and other elements like our powersaver hardware and a form-fit industrial case. You already know about the screen, the keyboard, the programmability and the economy of the M100/T102 computer. In combination, the OWL is a total solution for environmental monitoring & control. It has found application in everything from planning pest & frost control strategies in orchards large and small, to tracking endangered species of bats at their nest sites, to control of incubators and HVAC.

- Analog to Digital converter plugs into Tandy serial port.
- 7 input channels with 8 bit resolution, 1.28 volts full scale. Perfect with LM34/35 integrated temperature sensors. 0.005 volts per bit. Inputs are protected to ± 150 volts. Expandable to 49 inputs using optional multiplexers.
- 5 on-off outputs, for control of motors, valves, heaters, etc., Expandable to 32 on-off outputs using optional multiplexer.
- Weatherproof case holds both the T100/T102 and the analog to digital converter, etc. . Box has 2 padlock hasps. The A/D is also available without the case.
- Months of operation on battery & solar panel is possible in *powersaver* mode. The system wakes up intervals to take readings, then goes back to sleep. Continuous operation on AC power adapter & backup battery also supported.
- Probes and adapters available for:
 - temperature, humidity, windspeed & direction, light level, rainfall, surface moisture, pH, pressure, voltage current and more.
- Flexible HOOT software allows you to assign any channel to any type of sensor. Software "drivers" for popular sensors are included. You can modify those or write your own and merge them with the HOOT program for special applications.
- Data can be logged to a RAM file or to a printer at intervals selectable from 10 seconds to 2 hours. Data file format transfers to most PC spreadsheets.

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(Circle 85 on reader service card)



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83 recorder works well with the WP-2. This is the same recorder used by the Model 100 family and other Tandy machines. So if you have one, use it.

If you don't have a tape recorder and plan to buy one, make sure you get one that's built for computer use. And be sure to use tapes that are certified for computer use. I've used other recorders and non-computer tapes, and they work, but the long-term results are less than satisfying.

A better alternative is to use the Tandy Portable Disk Drive (PDD). It's a battery powered unit that connects to your WP-2 serial port. You'll need a 25-pin/9-pin adapter to mate the drive's 25-pin connector to the WP-2's 9-pin serial port (female, both ends).

The PDD Tandy currently sells is the Model 2 (PDD-2). (The original PDD—or Model 1, as it's frequently known—will not work with the WP-2.) The PDD-2 can organize disks as 200K bytes of storage in two banks, with up to 40 files per bank. You could have one bank using all 200K as long as there were 40 files or less.

The WP-2 uses the PDD-2 a little bit differently than the Model 100 does. Unlike the Model 100 the WP-2 uses only one bank. You still have access to all 200K, but you're limited to a maximum of 40 files. That works out to an average of 5K per file, or about two typewritten pages per file. This not a serious limitation, in my view, but it would have been

fairly easy for the WP-2's designers to take advantage of the PDD-2's dual-bank capability.

The third external storage alternative is a 32K IC memory card sold by Tandy. This is an electronic device about the size of a credit card that plugs into a slot in the side of the WP-2. It's quite expensive relative to the amount of storage it provides, but the amount of room it takes up

WP-2 Storage Sources

Cassette Recorder: Tandy CCR-83

(#26-1384)—\$ 59.95

Disk Drive: Tandy PDD-2

(#26-3814)—\$219.95

External Memory: Tandy 32K IC card

(#26-3931)—\$119.95

Internal Memory: Tandy 32K RAMdisk

(#26-3932)—\$ 49.95

MicroMime 32K/128K—(see ad)

Purple Computing 32K/128K—(see ad)

is negligible. While not a "mass" storage device like the tape cassette or floppy disk, its small size makes it useful for temporary storage while you're away from home base. If portability is your ultimate concern, this is the external storage device for you.

There are no third party IC memory cards that I'm aware of. The WP-2 is technically capable of supporting a 128K memory card, but Tandy uses a proprie-

tary connector rather than the standard JEIDA IC card connector. In fairness to Tandy, they developed their IC card before the JEIDA standard was finalized.

There are no "permanent" add-on memory banks for the WP-2 as are available for the Model 100.

NON-WP-2 STORAGE

Non-WP-2 storage sources include external devices such as IBM PC's, Macintoshes, and on-line computer services like CompuServe. You can send your data through the WP-2's serial port to another computer for storage or further processing. I'll discuss such "Big Iron" connectivity in another column.

WINDING DOWN

Well, that's all for this month. As usual, I've been running off at the mouth and need to go and recharge my saliva banks. Next month we'll take a look at using the WP-2 for producing finished documents.

This is your column. I want you to help define the "yellow brick road" for me to follow. Fire up your WP-2 and send me a letter in care of Portable 100 or directly at P.O. Box 28181, Santa Ana, CA 92799-8181. If you prefer the electronic medium, use GENie address STAN.WONG, CompuServe address 70346,1267, or Internet address dasun!wongs@Sunkist.West.Sun.Com.

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To load a file from the diskette to your Model 100, you just move the widebar cursor to the file and press ENTER. The file is transferred to your Model 100's RAM instantly. You can press F8 and go back to the main menu, and the file you loaded from diskette is there, ready to use.

It is so nice to be able to keep your documents, programs (both BASIC and machine code) and *Lucid* spreadsheet files on the diskette, and bring them back when you need them. All files are ready to run or use with no changes or protocol by you.

If you have access to a desktop computer and don't have *Disk +*, then evidently we have done a poor job telling you about it.

All files and programs that you load or save, go over and come back exactly as they are supposed to be because of full error checking. This guaranteed integrity is really a comfort. *Disk +* is wonderful in so many other ways. For example, you can do a "save all" of all your RAM files with just a touch of a function key. That group of files is saved on the diskette under a single filename with a .SD (for subdirectory) extension. Any time you want, you can bring back all those files at once, or just one or two if you like, again with one-button ease.

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This means you can write something on your Model 100, and with *Disk +* transfer it

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Incidentally, hundreds of Model 100 owners have gone to their Radio Shack stores and bought a color computer because it is so low priced, and with *Disk +* they have an inexpensive disk drive.

And if that weren't enough, how about this: *Disk +* also provides cross-compatibility between different computers like IBM, Apple or the Model 4 using the Model 100 as the intermediary device. Quite a feature!

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COMPATIBILITY: All MS-DOS computers.

Calendar: A Look at The Third of DeskMate's "Big Three"

And take a gander at To Do, Alarm, and Month, too.

by George Sherman

As promised in the last *DeskMate* article, I'm going to devote the entire space this month to *Calendar*. Well, actually to *Calendar* and several other related programs: *To Do*, *Alarm*, and *Month*. First a brief summary is in order.

"Scheduling is (an) area that many find more than a little tiresome. Not only do we have to keep records of what to do or remember and when, but we must also find, adapt, or create paper 'tools' to take care of these chores, and remember to check our schedules."

I've found *Calendar* and its related programs indispensable to my daily living. "DeskMate's *Calendar* application is several tools in one. For openers, you can view the current month's calendar, a month-by-month calendar for the entire year (six months at a time), a weekly display that shows each day in quarter-hour increments, and a daily display on which you can enter and display reminders for events such as birthdays or anniversaries, meetings, etc., for specific dates or on an annual basis."

"The *To Do* application/accessory is an auxiliary program designed to work with *Calendar*. It shares *Calendar*'s data, and organizes daily reminders and events for display in a special 'Things To Do' agenda box that you can install on the desktop of *DeskMate Version 3* or greater."

"The *Alarm* accessory is extremely useful as an adjunct to *Calendar* or as a stand-alone tool. Set the alarm and it will sound and flash the F9 button on the menu bar at the appointed hour and minute."

"The *Month* accessory is a great quick-reference tool for viewing a calendar for any month from any year. Use it when you need to consult the current month's calendar, plan ahead for next month (or

next year), or see which day of the week a specific date falls on."

As initially received, *Calendar* accesses only one file, *PERSONAL.CAL*. However, you can set up, if you wish, as many as twenty different calendars. You could, for instance, keep a separate calendar for your club, or church or synagogue. You could keep a calendar for your business appointments separately from your personal calendar. In other words you may adapt it as you wish. When I received my packet for *DeskMate 3*, *Calendar* was set up as a button on the desktop. If more than one calendar is used, then the user can change the button to a box to make easy access to each one. In my particular usage, I needed only the one calendar. Following Michael A.

**I've found
Calendar
indispensable to
my daily living.**

Banks' suggestions as I outlined in the second article in this series, I deleted the button from the desktop and opted for accessing the *Calendar* program from the *Programs* box.

Most of the commands available in *Calendar* may be executed from the pull-down menus or by the use of instant commands which are documented in the pull-down menus. As an example, to add an item to your calendar you may either press F6 to pull down the *Event*

menu, then move the cursor to *Add* and press *Enter* or double click the mouse button, or you may press *Ctrl-A*.

Calendar has a search feature which includes the options to *Find*, *Find next*, *Find date*, and *Today's date*. With the basic *Find* command you can enter a search string and two edit fields (*Start date* and *End date*) which you can use to specify dates between which the search should take place. Need to know when your next doctor's appointment is? Then search by the word "Doctor," or by his name, from the current date forward. Need to see what you have planned for October 17, 1991, to know whether or not you can accept another engagement? Use *Find date* and enter the date in the format MM-DD-YYYY. Oh, by the way, if you happen to enter the year with only two digits, such as "91," *Calendar* assumes 1991. "When you select *Today's date*, the display switches to the calendar for the current day, week, month, or year."

"Options on the *Event* menu, (or the appropriate instant command,) enable you to add, change, and remove events, annual occasions, and reminders."

Add ... is used to add an event to the currently displayed calendar (date). Select *Add ...* and the *Add Event* dialog box is displayed. In this box you can specify the date, starting time, end time, and a short description of the event. Events entered this way, and their starting times, are displayed in the *Things To Do* agenda box. Descriptions entered may be changed by viewing the calendar in the daily mode, highlighting the event, and then either using the pull-down menu and the *Change ...* command or the instant command key *Ctrl-C* to edit, replace, or delete it. An alternate method is to highlight the event and simply press *Enter*. In either case the *Change Reminder* dialog box will appear with that event's

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description available for edit. "Remove ... deletes the currently highlighted event, or all events prior to a specified date." This is useful to, say, clear out the prior year's events at the end of the year in one fell swoop. I do urge caution however. Remember, gone is gone. Once removed they cannot be replaced except by manually re-entering them one by one. Remove ... can, of course, also be used to remove single events, annual occasions, and reminders.

One particular feature of calendar I like is the ability to enter an annual occasion such as birthdays, special holidays, anniversaries, etc. Nationally recognized holidays and religious dates are pre-programmed into *Calendar*, are displayed on the appropriate day, are marked by a diamond marker on the *Monthly* calendar display, and appear on the *Things To Do* agenda box. When the user enters his or her own annual occasions *Calendar* treats them in the same manner as the pre-programmed dates—and remembers them from year to year. No longer will you forget your anniversary, or your spouse's birthday, or that of a favorite relative or business associate. Once entered they continue to appear at the proper date from year to year until removed by the user.

Need to remember when to change the oil in your car? Use *Reminder* and enter information such as the mileage or date of the next change. An item entered as a reminder appears every day on the calendar displayed in the daily mode, and also appears each day on the *Things To Do* agenda box until removed.

One feature not documented in *Getting the Most Out of DeskMate 3*, but which I have used frequently, is to use the *Add...* command without specifying a start or ending time. This acts in a similar manner to the reminder except that it only appears on the calendar on the date specified and will, of course, also be displayed on the *Things to Do* agenda box on the appropriate

No longer will you forget your anniversary.

date. This differs from the annual occasion entry in that the event does not reappear in each successive year. One of my extracurricular activities is to teach a small class of adults once a week. I like to keep track of their birthdays and mention it at the appropriate time. Using *Add...* in this manner allows me to enter the information for each class and then remove it at the end of the year in my annual "housecleaning" of the file.

I've mentioned several times the *Things To Do* agenda box. This box "...can be displayed on the desktop for immediate reference whenever you start *DeskMate*. If you are using *DeskMate Version 3.03* or later, you can also display the *Things To Do* agenda box in any application by selecting 'To Do List' on the *Accessory* menu (this is much easier than paging through an old fashioned appointment book." "When you select 'To Do List' from the *Accessory* menu, the *Things To Do* agenda box is displayed as a window overlaying the current application" The display in either case contains "...up to 12 activities for the current date. *Calendar*-defined holidays and annual occasions

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are displayed first, followed by reminders, then events. Holidays, annual occasions, and reminders are displayed in alphabetical order. Events are displayed in order based on their starting times (earliest to latest). When an event's starting time passes, it is automatically removed from the list.)"

"Need to take a quick look at the current month's calendar and can't find it? Want to see what day of the week a date falls on next month, next year—or 50 years ago? The *Month* accessory has what you need. You can view any month in the current year, or any month of any year for centuries past and future."

You can use *Month* at any time in any application "... to plan future events, check on dates in the past, and dozens of other jobs ... *Month* eliminates time wasted finding and shuffling through paper records." Just as with the *Things To Do* agenda box, *Month* may be displayed on the desktop. Since the method used to do this was discussed in the second of these articles, I will not go into it now.

Lastly we will take a quick look at *Alarm*. It "... can be set in two ways: as a 'quick alarm,'" or "... in conjunction with an event's starting time. If the quick alarm time is set a message edit box is used to enter an optional message to be displayed when the quick alarm sounds." When the alarm sounds, the F9 button on the desktop display flashes. Pressing this button displays the message previously entered, as well as messages for other alarms set in the current session.

How do I use *Calendar*? Glad you asked. Each month I first print out the monthly display, which gives me a month's calendar containing diamonds or asterisks on any day in which a *Calendar*-defined holiday and/or an *Annual*

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Occasion appears. Next, I change to the daily mode and print the daily schedule for the particular month. *Calendar* automatically prints the date and day of the week in underlined bold print, and the entries for the dates in standard print, identifying each as to type of entry and whatever identifies it, such as whose birthday, which holiday, whose anniversary, where I'm supposed to be on a certain date, etc. Also, *Calendar* only prints the dates that have entries, ignoring the rest. I'm very pleased with my current version of *Calendar* in this respect. My prior version would not print *Calendar*-defined holidays nor annual occasions. There was a rather ponderous work-around to take care of this, which I detested. I'm so very glad that Tandy solved this problem with Version 3 of *DeskMate*. After I have done my print-out, I next tack it on my bulletin board on the wall of my dining room, right next to my telephone. It's astounding how many times a month my wife and I both refer to this list. A very welcome and extremely handy tool.

BY GEORGE LEE

You can contact George on CompuServe (ID 72300,3203) or by mail, either c/o Portable 100 or directly at 1701 Clarke Street, Ponca City, OK 74601. (Please enclose SASE if requesting a reply.)

Unless otherwise stated, all quotes contained in this and future articles are from the book, *Getting the Most Out of DeskMate 3* by Michael A. Banks, a "Brady" book, published by Simon & Schuster, Inc., 15 Columbus Circle, New York, NY 10023, Copyright 1989 by Michael A. Banks.



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WHERE ARE THE MANUALS?

For many years I have used a Model 100 in my business. The system was great, and it suited my needs and beyond for almost seven years. Recently it became obvious that the "OLD 100" was overloaded, and it had to be deactivated (slowly, of course, for one does not just discard a trusted and valued old friend). Well, I purchased a Tandy 1500 exactly as shown on page 29, volume seven, number five. It does all types of great stuff and has tremendous capacities, and I felt it was the answer to my needs.

Well, surprise!

All the programs I had written over the years and had stored on 3.5-inch disks using the portable drive are not compatible with the 1500, nor in any way can I determine how to make them compatible. Thus I am asking if anyone knows how to make the disks compatible between the two machines. I don't want to re-type all those data files and programs.

Just a few words concerning the 1500. The hardware and supplied software is tremendous. The manuals for running the software are HORRENDOUS AND SIMPLE. There is not enough information to completely run the software. There is no manual on the MS-DOS v3.22 or for the DeskMate or for the GW-BASIC! I think paying \$2,300 for the 1500 should entitle me to some free manuals.

If anyone of any responsibility at Tandy Corp. should read this, be aware that the attitude of Tandy has diminished dramatically over the past few years. After calling the Houston center for help three or four times, the assistance given to me was nil.

Allow me to thank *Portable 100* magazine for using their pages to ask for help.

**Carmine A. Pagano
Tarrytown, NY**

Your diskette solution is simple: buy LapDOS II from Club 100. This program will let you plug your Tandy Portable Disk Drive into your Tandy 1500's serial COM1 port and read your Model 100 disks directly from your 1500. You can load the files into your MS-DOS machine without having to muck with RS-232 file transfers from your Model 100. Once they are on your 1500, you don't need the disks except as archive storage.

The only problems you will have is with BASIC and machine language programs. The machine language programs are com-

I don't want to re-type all those data files.

pletely incompatible between the two computers. BASIC programs will work, but also will require surgery to make them work completely. The problem areas are three-fold: screen and graphics commands, file input and output, and spaces between commands.

The first two are obvious. The commands for graphics (CHR\$, PSET, PRESET, PRINT@, and the escape codes) must be changed to their MS-DOS equivalents (i.e., PRINT@ becomes LOCATE). The file I/O commands need only minor syntax changes (e.g., the OPEN command is slightly different).

The last is not so obvious. MS-DOS GW-BASIC requires spaces between every Key-

word. You can't have `IFA=1THENPRINT`. It must instead read, `IF A=1 THEN PRINT`.

Finally, before you can load these files into GW-BASIC, they need to be re-saved in ASCII format. Your Model 100, when you saved the programs to disk, put them in a shorthand format. GW-BASIC is incapable of deciphering that shorthand. The solution is to load the programs into your Model 100, then save them as .DO files and transfer them back to your disks. The .DO files will load properly into GW-BASIC and you can start work on fixing them to run.

You're right, Tandy IS skimpy with their manuals. According to Ed Juge, the man in charge of computer marketing at Tandy, this is a reflection of the requests and feedback they received from Tandy purchasers: The previous manuals were too complex and too thick! As hard as that is to swallow, others I have talked to (especially new users), the manuals for GW-BASIC, DOS, and even DeskMate, were too intimidating. By comparison, as far as cost is concerned, look at the manuals you get with your car. Here's a piece of equipment that costs better than \$10,000 and they don't even tell you how to change the spark plugs! And they don't include driving lessons, either!

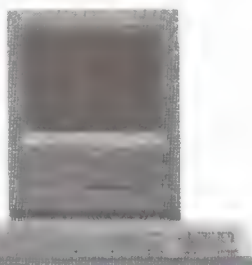
On a more serious note, Tandy does sell books on MS-DOS, DeskMate, and GW-BASIC for those people who do want more than is supplied with the equipment. Tandy does not include them with the machines because people who did not want them (people buying a second machine or moving up to a newer model) complained about being forced to buy copies of manuals they already owned. So, you see, Tandy is in a bad spot. No matter what they do, someone will always complain. By leaving out comprehensive manuals, they at least reduce the wholesale cost to produce the finished boxes. That, in turn, reduces the final retail price.

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DMP-105 PRINT CODES

Thought you might like the attached program, PRTYP.BA, that stays on my Model 100 (see listing one, below--Eds). There are at least six print selections I have found, and this combines them into one file where I can select the one I want, go the file I want printed, and complete the procedure.

Bold can be applied to any of the others, simply select it first then go back and select the other style you want. I have found that for my needs, the following line limits apply: Bold (if used with the standard print)—65 characters; Elite—100 characters; Large—56 characters; Very large—40; Small—130; and Huge—30 characters.

I have not found a way to change print

styles from my DMP-105 without turning off/on the printer, but that's a minor inconvenience.

I use my Model 100 in my insurance and real estate business, and I believe it is certainly a lot more convenient to use than the complex one we have in the office.

Bill Brewer
Austin, TX

It's plain that you don't have a manual for your DMP-105. The manual lists both the codes to turn on and off all the print styles. See figure one for a brief summary.

Bold and underline work in all the other modes, and with each other. If you are in condensed mode and want to go to standard mode, just send the control codes for standard mode.

There are other codes dealing with graphics, but for that information you need the complete manual. You can order a manual for the DMP-105 from Tandy National Parts. Go to the closest

```
1 PRINT "Print style desired: ";:PRINT
2 PRINT "1=Bold, 2=Elite, 3=Large":PRINT
3 PRINT "4=Very Large, 5=Small":PRINT
4 PRINT "6=Huge"
5 INPUT#
10 IFF$="1" THEN 500
20 IFF$="2" THEN 600
30 IFF$="4" THEN 700
40 IFF$="3" THEN 800
50 IFF$="5" THEN 900
60 IFF$="6" THEN 1000
500 LPRINT CHR$(27);CHR$(31);:MENU
600 LPRINT CHR$(27);CHR$(23);:MENU
700 LPRINT CHR$(27);CHR$(14);CHR$(27);CHR$(23);:MENU
800 LPRINT CHR$(27);CHR$(14);CHR$(27);CHR$(20);:MENU
900 LPRINT CHR$(27);CHR$(20);:MENU
1000 LPRINT CHR$(27);CHR$(14);:MENU
```

Listing 1. Bill Brewer's PRTYP.BA printer setting program.

Control Codes	Character Mode
14	End Underline
15	Start Underline
27 14	Start Elongation
27 15	End Elongation
27 19	Standard Characters
27 20	Condensed Characters
27 21	Carriage Return = Carriage Return
27 22	Carriage Return = Carriage Return + Line Feed
27 23	Elite Characters
27 28	Half line feed for next Carriage Return
27 31	Start Bold
27 32	End Bold
27 34	Set full line feed for next Carriage Return
27 36	Set 3/4 line feed for next Carriage Return
27 85 0	Select bi-directional printing
27 85 1	Select one-way printing

Figure 1. DMP-105 character control codes.

Radio Shack store and ask the manager to order the manual for you (Operational Manual for DMP-105, #MU-26-1276; the "MU" in the order number stands for "Manual, User").



COMPATIBILITY: All MS-DOS computers.

Moving Up: Chapter Three

*Specifics on MS-DOS,
and some starter shareware*

by Tony B. Anderson

MS-DOS is a disk-based system, unlike the RAM-based Model 100 family of computers. "DOS" is an acronym for Disk Operating System. Disk access is one of the most valuable features of MS-DOS computers. Programs and files are stored on the disk, rather than in RAM, and are brought into the PC's RAM in order to run or be used. MS-DOS also allows you to download incoming data directly to the disk, or upload data directly from the disk, making both functions of telecommunications easier and more reliable.

Another advantage of a disk-based system is that only the program that is actually being used (plus any TSR's) is in RAM, leaving most RAM space free for manipulation of data. This is a contributing factor to the perception that MS-DOS computers are "more powerful." The operating system doesn't have as much work to do in managing the available RAM space, moving other programs, files or data around, as in the Model 100 class of computers.

The vast majority of MS-DOS computers use 5.25-inch double-sided, double-density floppy diskettes (disks) that will store 360K of data. Another format being used in this disk size will store up to 1.2 megabytes of data, but the standard is the 360K figure.

In recent years, spurred by the popularity of the laptop class of PC's, 3.5-inch disks have become popular, and their use is becoming widespread. The formatting standard for such disks will hold 720K of data, in the same double sided, double density format, but using 80 tracks on the disk rather than 40. There is also a 1.44 megabyte standard for 3.5-inch disks, but the disk's plastic case is physically different, having an extra sensing hole, that tells compatible drives that the disk can be, or is, formatted to

hold the larger amount of data. 720K is the most common standard among the PC laptops, and they generally can't read, write, or format the 1.44 megabyte disks. There are exceptions, of course, and dual-format drives that will handle either format are readily available.

Most recently, portables have been available with hard disks capable of storing 20 megabytes or more of data. There are several advantages in having a hard disk in the portables; speed and capacity are the two most important. Hard disks operate at much faster data access speeds than floppy disk drives, so programs and data are available to the computer much faster.

Additionally, the greater amount of storage space eliminates the need to carry a bunch of disks along with the computer. A typical 20 megabyte hard disk can store all the data and programs normally stored on up to thirty 720K disks.

In general, in selecting a hard disk, "the more, the better," meaning the more storage space you can get, the better off you will be. A 30 megabyte hard disk is better than a 20 megabyte hard disk, and so on. Personally, I wouldn't buy a PC laptop without a hard disk.

Those of us who are used to using the Model 100's with a Tandy Portable Disk Drive, are used to storing 100K or 200K of data on a disk. To have such large amounts of disk storage space as 720K or 20 megabytes *seems* extravagant ... or wonderful ... like you would never need or fill up that much storage space. But believe me, you will. Aside from the data you generate or use, MS-DOS programs are typically much larger than those used in the Model 100 world, and the available disk space will fill up pretty rapidly. You'll eventually end up wishing you had even more. In fact, there is a considerable aftermarket for hard disk

drives which offers upgrades to larger and larger storage sizes.

DIRECTORY STRUCTURE

A unique aspect of the MS-DOS disk system is that each disk has a main directory called the "root directory," and you can have "subdirectories" which contain related programs and files, all on the same disk—up to the disk's capacity, of course.

The root directory on a 360K, 5.25-inch disk will hold a total of 63 entries; files, programs or subdirectories. The root directory on a 720K, 3.5-inch disk will hold a total of 112 entries. The root directory on a hard disk (regardless of total disk capacity) will hold a total of 512 entries.

A unique feature of the MS-DOS disk structure is that subdirectories are actually a special type of file, which can be any size, up to the capacity of the disk, and can hold as many entries as can be stored in the available space on the disk. Where the root directories are limited in size—in the number of entries it will hold as indicated above—subdirectories are not limited, and can hold many more entries than the root directory itself. Subdirectories can hold additional files, programs, and even more subdirectories.

You can think of this structure as a tree, branching out from the root directory. Each branch can store its own set of related files or programs, and the search path you specify in the *AUTOEXEC.BAT* file can point to as many of these branches or subdirectories as you need.

The closest thing we've seen in the Model 100 world that relates to this structure is with the Chipmunk Disk Drive, which has a folder structure; each folder, a group of 24 entries, is capable of storing programs, files, or entry names for additional folders—essentially, sub-

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Secondly, LUCID[®] is fast. LUCID[®] is so rapid, a 36 column corporate financial statement took less than 4 seconds to calculate.

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Further, LUCID[®] has what no other spreadsheet has: Cut, Copy, and Paste. It uses the same keys as Cut and Paste in TEXT, but here's the difference: it takes all the formulas with it when you paste and they all automatically recalculate with the entire sheet.

And here is what is really amazing. You can copy or cut from one spreadsheet and paste into another spreadsheet or even a TEXT file.

LUCID[®] supports all BASIC math functions as well as Log, sine, cosine, tangent, exponentiation and other sophisticated math functions.

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LUCID[®] has expanded "go to" functions that remember and produce a windowing capability.

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You can prepare a report section in your spreadsheet with instructions to your user for printout, and they can produce a personalized printout that responds to their input. All your formulas and tables that did the calculations and provided the facts are invisible to that user. LUCID[®] is useful for doctors for patient questionnaires, troubleshooting technicians, purchase clerks, people doing job quotes, stores for customer workups, insurance agents and anybody who needs to process specific facts and numbers to produce a report based on those responses.

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LUCID[®] is, in our opinion and that of those who have examined it, a breakthrough. We sell it on a 30 day trial. If you are not completely satisfied, return it within 30 days for a full refund. Priced at \$99, on snap-in ROM. MasterCard, Visa or COD.

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Special Dvorak one-handed keyboard uses the same efficient design principles as the above system, and makes typing faster and easier for people who have the use of only one hand. Do more with less fatigue! Just like the above software, it is small, simple to use, and works in TEXT, TELCOM, BASIC, etc., and commercial software without any hassles. Your computer acts like it came from the factory with a one-handed layout. And you can switch between the one-handed layout and the original (two-handed QWERTY) layout by pressing a key. \$36.95—Tandy PDD disk. \$39.95—Standard tape cassette. Please specify left or right-handed version when ordering.

Circle 35 on reader service card.

directories.

Generally, the hard disk in the MS-DOS system is identified as the C: drive. Floppies are generally identified as A: or B:, and a RAMdisk, as in the 1400's, is D:. Desktop PC's can have additional drives; usually, five is the default number, but if they are available, with controllers, you can specify additional drives in the CONFIG.SYS file, with any letter you wish. Those who use DOS programs in the PC to access files on the Tandy Portable Disk Drives (connected to the PC's COM port), notably *LapDOS* and the new *PC-PDD*, identify the portable drive as the P: drive.

COMPRESSED FILES

One of the first things you'll notice in the PC environment is that the programs are larger—*much* larger—than similar programs in the Model 100 family. Large programs take up a lot of disk space. That's one reason a hard disk becomes important. If you want to have more than one or two programs available at any given time, you need the hard disk to be able to store and work with them easily.

Because PC programs are larger, file compression has become a common practice in the PC world. Compressed files save space and require less time to

TMN Assembler

from Tri-Mike Network East

This assembler requires less than 3K RAM and is relocatable. It assembles source code from any file or device; accepts data in hex, decimal, or ASCII; creates a ready-to-run .CO file directly on the Menu or an optional trial assembly. Six built-in macros make programming even easier. Output all or any portion of the assembled listing to screen or printer, with optional user-inserted pauses. **Manual includes extensive RAM and ROM maps!** (Model 100/102, 200, NEC 8201/8300) \$36.95—Portable Disk Drive Disk. Standard Tape Cassette—\$39.95

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transfer between machines, particularly when downloading from BBS's or on-line services where you are charged for connect time. A file that is packed to 50 percent of its original size will take half the time to download as one that is not compressed.

There are several file compression techniques in common use. The two most popular are "archived" files and "zipped" files. Such files are generally identified by the file-name extension .ARC or .ZIP. A unique feature of such files is that an archived or zipped file can contain more than the program file itself—it can contain docu-

mentation or instruction files, related programs, customization programs or files, any number of additional related programs or files, all in one large file. After you have downloaded such a file, you "dearc" or "unzip" it to separate out all the individual programs and files, using a program designed specifically for that purpose.

Because compressed files are in such widespread use, programs to restore them to their uncompressed state, so you can use them, are one of the first things you must add to your personal software base.

Although there are complete software packages that handle all aspects of compressing and uncompressing files, compressing and storing multiple files, separating out or updating individual files in a compressed package, the thing new users will immediately need are programs to decompress such files. You can worry about compressing files later on; at the beginning, you mainly need to be able to decompress them so you can use them. The program that handles ARCd files is called *ARC-E.COM*, and the one that handles ZIPped files, is called *PKUNZIP.EXE*.

"MAKE IT EASY" TIP

These programs are generally used from the DOS prompt, after you have downloaded an ARCd or ZIPped file, or after inserting a disk with such a file into your computer. Since a program can be run in the MS-DOS machine by simply typing its name (if the program is in the search path), it makes a lot of sense to rename *ARC-E* and *PKUNZIP* so you can use these programs as direct commands, rather than running a program.

With that in mind, I suggest you rename *ARC-E.COM* to *DEARC.COM*, and rename *PKUNZIP.EXE* to *UNZIP.EXE*. Use the direct DOS commands:

```
RENAME ARC-E.COM DEARC.COM
RENAME PKUNZIP.EXE UNZIP.EXE
```

Now, when you're ready to dearc a file, all you have to do is type *DEARC FILENAME*, or *UNZIP FILENAME*, and the program takes over and does it. If you have a second floppy disk, or a hard disk drive, you can dearc or unzip files to that drive by adding the drive letter to the end of the command line, as in: *DEARC FILENAME C:*, which means, "dearc FILENAME.ARC to drive C." *UNZIP* works the same way.

SHAREWARE DISK

This month's shareware software disk consists of the two decompression programs, *ARC-E.COM* and *PKUNZIP.EXE* and associated instruction files. These programs are already unpacked, and ready to be copied onto your hard disk, installed in your search path, and ready for use with a minimum of fuss.

Order from Tony Anderson, Box 60925, Reno, NV 89506. 3.5-inch or 5.25-inch MS-DOS disk is \$6.00 postpaid. (specify which size you need.)

NEXT MONTH:

Program squashing to save space on your hard disk, and making self-extracting archive files of your own.

Tony Anderson, a sysop on CompuServe's Model 100 Forum for six years, has been a frequent contributor of articles and programs to the Forum's libraries, and also develops and sells commercial software for the Model 100 family, including the popular CRDFIL database. He'll be happy to answer questions sent to him via CompuServe's MAIL facility (send to 76703,4062), or by postal mail at P.O. Box 60925, Reno, NV 89506 (please include SASE if requesting a reply).



COMPATIBILITY: Model 100, 102, 200, NEC 8201/8300, Kyocera KC-85, Olivetti M10.

Model T Basics: A "Kinder, Gentler" Computing

Getting started with your Model T computer.

by Gene Wilburn

The Model T's—Tandy 100/102/200, NEC 8201/8300, Olivetti M10, and Kyotronic KC-85 laptops—have been around since 1983, and many *Portable 100* readers have been using them since the beginning. There is, however, a new generation of Model T owners who have come to this classic family of portables only recently. Whether you picked up a used Model T at a garage sale, received one as a "hand-me-down," or purchased one from Radio Shack, I hope to convince you that you've got your hands on one of the niftiest portable computers that ever hit the streets. The Model T may no longer be the height of fashion, but it still provides a great ride.

That said, let's not delude ourselves. Unless you've been tucked away in Frostbite Falls for the past decade or so, you have undoubtedly learned about PC's, Windows, Macintoshes, high-speed modems, local-area networks, and the revolution in distributed, decentralized office computing. If you work in a business or home office, you probably use some of this advanced technology on a daily basis.

Relax. I'm not going to suggest that we chuck all the tremendous advances that have been made in microcomputing and try to turn the clock back to 1983. No Model T fanaticism here. I like my PC's and my Mac and I use them all the time. *Corel Draw* is the best thing that's shipped from Canada since Joni Mitchell. But the intense, competitive din of MS-DOS and Macintosh computing, while exciting, can also be bewildering, confusing, unsettling, and, at times, distasteful.

The Model T is different. It's intimate, individual, and personal—rather like folk music. It represents a "kinder, gen-

tlar" computing. No heavy metal. No operatic choruses. It's Cisco Houston singing the songs of Woodie Guthrie. Honest, plain, and pleasant.

Where does a Model T fit in today's computer culture? Let me admit to a bias. I like Model T's best as *adjuncts* to my desktop systems. There are Model T users who use their Model T's for all their computing needs, but I'm not among them. I've never attached a Model T to a

Few MS-DOS computers come close to the Model T's size and weight—none compare on battery life or cost.

printer except for curiosity—to verify that it can be done. With decent PCs selling for less than \$1000, I see no reason to do things the hard way.

The strength of the Model T's is that they offer features few other systems can match. Like true portability, with a size and weight that makes carrying them in a briefcase or shoulder bag perfectly acceptable. There are only a handful of MS-DOS computers that come close to the Model T's size and weight, and none

that compare on battery life or cost.

Then there's the matter of simplicity. Model T applications are simple to learn and simple to use. And their output is so GENERIC (important point that I'll come back to often) that Model T files are readily exported to desktop systems for further processing.

I suspect that many Model T owners use them the way I do—as a convenient, funky part of a larger computer mosaic. The JOYRIDE column is going to talk a lot about moving Model T files and data to PC's and Macs. We'll explore tricks that make this easier.

THE HARDWARE

So let's get started. First let's look at the computer itself and see what's there. With the exception of the Tandy 200, the most noticeable thing about these machines is that they lie flat, with a flush-mounted LCD screen that displays eight lines of forty characters. They're the size of a thick notebook and fit inside a briefcase. The Olivetti M10 has a tiltable display. The T200 resembles an MS-DOS clamshell portable with a hinged, flip-up screen that displays sixteen lines of forty characters.

Yes, the screen is small and the number of words displayed at a time is limited. The characters are, however, large and quite readable in decent light. (Later in this series we'll explore ways to get more words on the screen.) The flat design makes the Model T relatively thin, highly portable and easy to use in trains, planes, and doughnut shops. It's a laptop you can actually park on your lap and use with enjoyment.

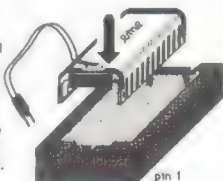
The next obvious thing about the Model T is the keyboard. While family members have slight differences, they all have a Selectric-style keyboard layout.



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extRAM is a 32K byte read/write memory expansion that fits into your Tandy's internal option ROM socket.

extRAM fits into the option ROM socket in the 100/102/200. A quick 2-pin plug connects extRAM to battery and WR lines, all under the snap-on cover. Easy to install.



There are two ways to use extRAM: (It's one or the other at any one time.)

As a **RAM-file-bank**, you double your space for .DO, .BA and .CO files. You store reports, data and programs you aren't currently working on out of the way in the extRAM and call them back instantly when you need them. Our improved file-bank software hides in the extRAM itself, so it uses minimal RAM and it is "cold boot" proof too. It also now includes extensions to BASIC for reading and transferring individual text files. Adapted from original software, *SLX* and *EXTBAS*, © 1989 by Paul Globman.

As a **ROM-file-bank**, or **emulator**, you can load extRAM with the kind of software that normally resides on option ROM chips. But no more physical chip swapping! You swap in new ROM *images* on command, from files stored on disk or RS232. Great for users of more than one ROM and for ROM developers. Loads 32K image in 40 seconds. Works with most ROM software. Software R2D2X © 1990 by Wilson Van Alst.

The software comes with each extRAM in the form of listings and instructions in a 38+ page manual. Optionally, to save typing, you can order a disk with all the programs in machine-readable form.

We accept Visa/Mastercard, check, money order (\$ U.S.) or qualified Purchase Order.

extRAM for M100	\$75ea	
extRAM for M102	\$75ea	
extRAM for T200	\$75ea	
extRAM software disk	\$15ea	
(circle 3.6" disk format: tpdd ms-dos Mac)		
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MODEL T JOYRIDE

Many a writer has commented that the Model T keyboard was designed the way a keyboard ought to be.

The keyboard is uncluttered and sufficiently large for good touch typing. All the Model T's have function keys at the top and cursor keys that are separate from the main part of the keyboard. The control key (CTRL) is beside the A, where God meant it to be. The large ENTER key is easy to hit, and the ESC and delete/backspace (DEL/BKSP) keys are where you expect them—in the upper left and upper right corners of the number row. The Model T keyboards are much nicer to type on than the complex, crowded keyboards of most MS-DOS portables.

Along the sides and back of the Model T's are various controls and interfaces. On the Tandy 100/102/200, the on/off switch and the contrast wheel for the display screen are located on the right-hand side. All models have a receptacle for an AC adapter. On the left-hand side

ing a ROM chip that can provide additional programs. More on this in future columns. There is a memory-power switch to be used to power off RAM. (Be careful not to switch this one by accident.)

That's it for the hardware tour. An AC power supply should probably be your first additional purchase if you're going to use your Model T on a desktop on a regular basis. The models are all designed so that power from the batteries is turned off when the converter is active. Adapters stretch battery life.

The T100/102 models have two holes at the back bottom of the case. You can still purchase a pair of rubber-tipped legs from Tandy that insert into the holes and prop the unit up at a nice viewing and typing angle. A good investment. If you have kiddlets around the house, you might want to be extravagant and purchase two sets of these legs. At least one leg usually goes missing, ending up among the Ninja Turtle and Dick Tracy action figures.

BUILT-IN SOFTWARE

The real joy of the Model T occurs when you switch it on. No waiting for a bootup, no complicated CONFIG.SYS and AUTOEXEC.BAT, and definitely no C:\> prompt. The operating system is virtually invisible to you. The names of the built-in software applications display on the screen and you simply use the cursor to highlight the one you want and press ENTER.

The three fundamental applications are TEXT, TELCOM, and BASIC. The Tandy Model T's also have two additional programs—ADDRSS and SCHEDL—that work on files created with TEXT.

According to Tandy market research, the overwhelming majority of Model T owners surveyed use TEXT far more than any other program. What most people want to do with a Model T is write with it. Students, researchers, journalists, and writers are among the Model T's greatest fans.

Next time we'll focus on TEXT. I'll pass along some tricks I've learned to make writing on the Model T more efficient and productive.

You can communicate with Gene via CompuServe (his ID is 72435,732), through regular mail via the Portable 100 magazine address, or direct: 91 Inglewood Drive, Mississauga, Ontario, Canada L5G 1X9. Please add sufficient postage if you mail to Canada and an international reply coupon when requesting a reply.



The real joy of the Model T occurs when you switch it on.

of the T100/102/200 are switches for the built-in modem and a port for a bar-code reader.

At the back of all the units are a serial and a parallel port used for attaching external devices such as modems, null-modem cables, disk drives, and printers. The T102 and T200 have an external system bus connector at the back (the system bus is on the bottom of the T100). The Tandy units have DIN connectors for attaching the modem to a phonejack and for attaching a cassette recorder. They also have a reset button at the back for bailing out of emergencies such as a locked up computer where the screen is frozen.

At the bottom of the units is a covered receptacle that holds four AA batteries. There is also a covered socket for insert-

The Portable 100 Classifieds

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TRANSFER.COM MS-DOS/Tandy Laptop \$9.95 plus \$1.00 shipping and handling (Min. \$18 for MC or VISA orders; Calif. residents add 7% tax).

Easily transfers .DO files both ways between MS-DOS computers and your Model 100, 102, or 200 laptop. MS-DOS formatted 5.25-inch disk contains the transfer program, complete documentation and several unique files, including laptop programs not found anywhere. Write to: McBride Services, 984 Hawthorne Drive, Walnut Creek, CA 94596. Order phone number (415) 939-5285. 1/92

Public Domain Programs for Tandy Model 100/102/200 computers. Wide variety: TEXT, PRINT, TELCOM, BUSINESS, GRAPHICS, DRIVES, UTILITIES, GAMES, MUSIC, PROGRAMMING, EDUCATION. 28 page listing (\$5) refundable off your first program order. Club 100, Box 23438, Pleasant Hill, CA 94523 415/932-8856, bbs:939-1246. 1/92

HARDWARE

Data Acquisition with M100/102. REI, RR1 Box 113F, Royalton, VT 05068. (802) 763-8367. 10/91

NEC PC-8201A/PC8300 Computers, Multi-Program and Custom Software Chips, Parts, Accessories, Memory Modules, Interface Kits, Repair Service, Technical Support ... Daniel Cohen, Box 237, Plymouth, New Hampshire 03264 (800-338-1839. 603-536-8218) 5/91

For Sale: Model 100/102/200 Computers. Ever changing list of FSBO and consignment computers and accessories. Club 100, Box 23438, Pleasant Hill, CA 94523 415/932-8856, bbs:939-1246. 1/92

Tandy 102 w/32K, adapter, & null modem. Rarely used. \$225.00 (409) 935-5637 5/91

FOR SALE

Run a BBS from your Model 100! For

details, send \$3.00 to Keith Graham, P.O. Box 6065, Omaha, NE 68106. 5/90

Two 32K Model 100's and accessories. \$300. (308) 527-3506 5/91

WP-2 ROM simulator card! Plugs into the expansion card slot of the WP-2. Holds up to four 256Kbit EPROM's or two 1Mbit EPROM's. \$89.95 each. Midwest DataCard Marketing (513) 433-2511 12/90

STOP!! DON'T SELL IT! USE IT! Club 100 offers an abundance of nifty stuff; lot's of FREE support for Model 100/102/200/ WP-2 computer users. Club 100, Box 23438, Pleasant Hill, CA 94523 415/932-8856, bbs:939-1246.

Model 100 (good condition), Super ROM, Ultrascreen, accessories. Will sell as package or separately. Best offer. John (617) 662-2879. 5/91

Total System: Tandy 100 with full 32K memory, Portable Disk Drive, UR II ROM, Star SG-10 Printer, many extra items with numerous manuals and software. Excellent condition. Guaranteed. \$500. 215-440-6123 or write Box 143, Hatboro, PA 19040.

WANTED

Hobby contact wanted with Tandy notebook users in Paris and suburbs. Possible program exchange. Speak English, French, and Model 100 assembly language. Call 45-03-12-16 Paris phone, or write Mike Kelton, 39 Avenue Paul Doumer, 75116 Paris, France. 4/91

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Continued from page 3.

For Mac connectivity, Cabochon's revised ad on page 29 clarifies that, in addition to *WPduet* for WP-2 owners (reviewed May '90), they also offer *100duet* for Model T owners. Look for that review next month!

Speaking of reviews, we're arranging some for the *Multisolutions* and *Multiplan* ROM's available from Robert Rice. That's only part of what he offers. For the rest, send for the catalog! (See ad on page 21.)

It's almost "last call" on books from Granite Street Portables (page 27). One is already sold out, and they say supplies are limited on the rest. Time to stop "thinking about it" and get shakin'. You might not get another chance!

Well, that wraps up my May editorial. Now this young publisher's fancy can return to the present moment and thoughts of other things. See you next month. Meantime ... I've got a date with April!

Nuggets

Coming Soon in P100!

Reviews: *Telecommuter/X-TEL*; *WP2DOS*; *StayAround*; *100duet*; and more!

Features: Tandy 100/200 teaches typing in one hour; interviews with advertisers; students using Tandy 102's and more!

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For free information on products advertised in this issue of *Portable 100*, locate the Reader Service number corresponding to the advertisement that interests you. Circle the number on the Reader Service Card at page 23 (or on the protective mailing wrapper if you are a subscriber) and drop it into the mail. The literature you've requested will be forwarded to you without any obligation. Please allow 3-5 weeks for delivery.

ADVERTISERS

RS#		Page
21	Adtron Corporation	15
9	Cabochon	29
160	Club 100: A Model 100 User Group	1
163	Club 100: A Model 100 User Group	18
165	Club 100: A Model 100 User Group	19
5	Destiny Technology	5
81	EME Systems	21
85	EME Systems	23
83	EME Systems	34
30	Granite Street Portables	27
35	Granite Street Portables	32
17	Herne Data Systems	5
116	King Computer Services	9
37	MicroMime	9
149	MicroMime	15
29	Microsense	14
41	Node Systems	10

ADVERTISERS

RS#		Page
121	Paul Globman	12
39	Personalized Software	12
45	Pacific Computer Exchange	16
13	Portable 100—WP-2 Book	21
7	Portable 100—Hardware	CII
117	Portable 100—Hardware	5
55	Purple Computing	16
49	Purple Computing	5
151	Robert Rice	21
20	Shreve Systems	27
127	Software Versand	27
18	System Peripheral Consultants	16
71	Tri-Mike Network East	6
73	Tri-Mike Network East	24
74	Tri-Mike Network East	31
72	Tri-Mike Network East	CIV
134	Ultrasoft Innovations	26

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1985

January: DG has the One to Go, *Model 100 Proves Itself in the Jungles of Nicaragua*, Meet the Dulmont Magnum, *Telecommuter: Software that's Ingenious*, *Kyocera's Three Aces*. End Telephone Tag with M100's.

February: NEC Wishing upon Its Starlet, In-Depth Reviews of HP 110, Sharp PC-5000, *Chattanooga Systems AutoPen*, *AutoPad*, *Trip*.

March: Reviews of Epson Geneva and Osborne 3, Comparisons of Two Thermal Printers (Brother HR-5 and Printex TH-160); *The Pluses and Minuses of Batteries*, *M100 Data Acquisition*.

April: Reviews of Sord IS-11, Sharp PC-1350, *DISK+*, *T-BASE*, and Roadrunner; *Free Software: Textpro*, Technology Transfer Damming the PICO Pipeline to Russia.

May: Review of DG1, Which Spreadsheet Should you Buy? Servicing Picos, LCD Screens in Color, Federal Express.

June: Reviews of *Tandy 200, 2.2 Companion*, and *T-Backup*, *M100 File Transfer*; Wrangler improves the Odds with Sharp PC-5000s, Dow Jones News/Retrieval On-line Database, *Courtroom M100's*.

August: Reviews of Datavue 25 and *Touchbase Modem*; QuickTrip Convenience Stores More Efficient, Tracing Tribal Roots and Translating the Bible in Jungles of Papua New Guinea.

September: Reviews of HP Portable Plus, *WriteROM*, *ThinWrite 80 Portable Printer*; A Flat Mac, *M100 Meets Challenges at Woods Hole Oceanographic Institute*.

October: Reviews of Kaypro 2000, *T-View 80*; Computerized Fire Department, Stretching the limits of Telephone and Computer, *BASIC translation Tactics*.

November: Reviews of Bondwell 2, NEC 8027A Printer, CQ Haste; *PICO Formatter*, Search and Rescue Via Computers, Industry Views from an HP Exec.

December: Close Look at Ericsson Portable and *TMPC (time management software)*, Travel Tips, Tricks for Traveling, *Dialer Program*, *Project management with the M100*.

1986

January: Reviews of Gridcase 2, Access, Word-Finder, and Prospecting, CP/M and MS-DOS, *Security Program*, Can Universities Cope with Picos? News from Comdex, *Jazz up your LCD*.

February: Reviews of ZP-150, and LeScript Word Processing; *Stevie Wonder Inspires Stardom in M100*, Can Universities Meet Expectations of

Computer-literate Students? *Cold-Start recovery, Personalized Form Letters*.

March: Reviews of Panasonic Exec.Partner, Lync 5.0, and *Hardwire*; University Rethinks its Tasks, Picos in Medicine, *Auxiliary Battery Packs Spell Independence*, *More Muscle for the M100*.

May: Reviews of Toshiba T1100, IBM PC Convertible, Casion FX-7000G Calculator, SG-10 Printer, *MIKEY*, *Appointment Manager*, and *FAST*, IRS Crowns Zenith's Z-171, Handhelds in Restaurants.

June: Reviews of Zenith Z-171, *LapCoder*, *SuperROM*, *LAPDOS*, and *BlackJack*; Go Shopping at PC in Rochester, NY, OM10 RAM Map (pt 1), A Tale of Two City Councils.

July: Reviews of Bondwell, ROM2, Letterjet HS-80, and Sidestar.; Electronic Cottage, Taking Stock of Investment databases II, NEC 8201A's LCD, OM10 RAM Map (pt 2).

August: NH's Governor discusses Laptops, PC-7000 from Sharp, Choosing your test-oriented Database manager, *Model 100/200's Lend a hand to Job Seekers*, NEC-8201A's Communication Connection.

October: Reviews of Toshiba 1100+, New Word, *Diconix Printers*, Fortune 500 Picos, Interview with DG Exec's, Desktop publishing with Picos.

November: Picos in Libraries, *Clever M100 Combinations*, *Exploring TPDD Part I*, Reviews of Datacomputer 2.0, *TPDD*, *TS-DOS*.

December: Pcios on Wall Street, Connecting to On-line Databases, Telephone Problems, *TPDD Part II*, Reviews of *Cleuseau*, *French/German Tutor 3*, *Pocketsize Modems*; 1986 Article Index.

1987

January: Book Publishing With a Pico, *Framework in a Pico*, Review of Right-Writer, JK Lasser's Money Manager, HP+Enhanced, Electric Webster, *Disk Power*, Pico's Computer Buyer Guide.

February: *Poor Man's Idea Processor*, Macintosh-Pico Connection, *M100 Cursor key alteration*, Handhelds: HP-18C, Langenscheidt 8000, TI-74, Reviews of Sord IS11-C, *Lets Play Monopoly*, *\$100 letter quality printer*.

April: Browsing the Boards, Writers & Portables, KTI products, Badminton & NEC, Reviews of *Inside the M100*, *TTXPress Printer*, *PCSG Business Analyst*, *Datapad 84 Zoomracks & ECFS*.

May: Doctors with Portables, *Text to printer*, Hitting the Board **OUT** of PC Convertible Add-ons, Holiday **OUT** & Shout, *M100 memory Expansion*.

June: Lawyers & Laptops, *Personal Management System*, *M100/Mainframe Terminal Prog.*, Reviews of Wang Portable, *Search*, *Sprint and Supercalculator*, *Best of Compuserve book*, Chess-to-go.

July: Programming in the Portable Environment, Sysop interview, Talking portables (pt1), Portable Computer Buyer Guide, Reviews of *TS-Random*, Software Carosel, Popcorn & the Hyperion.

August: NEC 8201 tokens, Laptops in Movie filming, Talking Port **OUT** Reviews of Casio FX-8000G, Tandy 1400 LT, and *System 100*.

September: *English Teachers use Laptops*, *Picos in Class*, D **OUT** mplates, *Picos in the Oil Patch*, Reviews of *ColorPro*, and the *Sportster 1200 modem*.

November: *Control That Printer*, *Academia & Laptops*, Laptops on Capital Hill, *Starlet Secrets*, Reviews of Psion II, *DVORAK keyboard*, & Spark.

December: Global Laptops, *Starlet Software*, Toronto Blue Jays & GRID, *NiCd Notes*, Review of IMC LCD-286, 1987 Article Index.

1988

January: Portable Computer Cellular Communication, Laptop Roundtable, Pico Portable Guide, Reviews Telemagic, Direc-Tree Plus, SchwabLine, Quotrek.

February: TenniStat, Flexibility of Form, T200 and T16, Reviews Eclipse, T1100 Hard Drive.

May: Handhelds Fight Crime, A Pico in China, Compaq Port. III, Datavue Snap, Fax hits the Road, HP Portable Vectra, T1400LT, Three Pocket Modems, Close-Up's Customer & Support.

June: Multispeed in the Tropics, *Monitoring Alkaline Batteries*, PSION and Mass Storage, Datavue Spark, Smith Corona Portable Word Processor.

July: Toshiba on the Road, *Diskette Ratings*, *Metered NiCd Manager*, Procomm on the NEC, WordPerfect 4.2 on the T1000, Sales Ally.

September: Laptops & the Learning Disabled, WordPerfect 5.0, Dynamac EL, HP-71B, WordPerfect Executive, Webster's New World Writer II.

October: Portables at Sea, Macintosh Navigating, Piloting and Celestial Progs, NEC-8300, Compaq Port. 386, File Transfer, Golden Parachute.

November: European EMAIL, New Tricks for your Cassette Recorder, Pico Pillows, Amstrad PPC-640, Selecting the President, Sales Power, Sales Strategy, Office Writer goes Light.

December: *FASTECH*, Automating Your Sales Force, AI, ScriptWriter, LiteDrive, Homeword Plus, VP-Export.

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Write ROM — the definitive word processor for the Model 100. Function key formatting or dot commands. Search and replace. Library feature — inserts words, phrases or whole documents into text from just a code. MAP lets you see a picture of your document. In all there are 60 features and functions. No one can claim faster operation. **FORM** lets you create interactive forms with on-screen prompts that you can answer from the keyboard. Nothing else for the Model 100 compares with the features of Write ROM. Exactly the same as the Write ROM sold as a single program. Infoworld says it "makes the Model 100 a viable writing unit ... sur-

passed our highest expectations for quality and clarity."

Lucid Spreadsheet: This is the one PICO magazine says "blows Multiplan right out of the socket" and Infoworld performance rated as "excellent" and said "makes the Model 100 compute." Gives you features you cannot get with Lotus 123. Lets you build spreadsheets in your Model 100 that would consume 140-150K on a desktop. Program generating capability with no programming knowledge required. Variable column widths. Includes find and sort with function key control. It's fast, recalculates like lightning. No feature has been taken from the original, only new ones added.

Database: This is a relational data base like no other. You can do everything from mailing lists to invoices. No complicated pseudo-coding, you create input screens as simply as typing into TEXT. You are not limited by size; you can have as large an input screen as you wish. Prints out reports or forms, getting information from as many files as

you like. Complete math between fields. Total interface with Lucid worksheets.

Outliner: Does everything that Think-tank does on a PC but a whole lot better. Includes a Sort for your headlines. Lets you have headlines of up to 240 characters. Has cloning, hoisting and sideways scroll up to 250 characters. Like Lucid, this one sets a new standard for outliners. This is the way to plan and organize your projects.

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